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FOREST PRODUCTS ANNUAL MARKET REVIEW

2000-2001

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NOTE

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ABSTRACT

The UNECE/FAO *Forest Products Annual Market Review, 2000-2001* provides general and statistical information on forest products markets in the UN Economic Commission for Europe region (Europe, North America and the Commonwealth of Independent States). The *Review* begins with a general overview of the forest products markets, followed by a description of the economic situation in the region. Two special chapters are included this year: "Influence on Japanese demand for wood products" and "Romania's forest products markets". The market developments in five standard sectors, based on annual country-supplied statistics, are described for: wood raw materials, sawn softwood, sawn hardwood, wood-based panels and paper and paperboard. Regular chapters discuss markets for certified forest products, secondary processed wood products and tropical timber. In each chapter production, trade and consumption are analysed and relevant material on specific markets is included. Tables included with the text present detailed information and annex tables contain further reference material.

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PREFACE

The UNECE/FAO *Forest Products Annual Market Review, 2000-2001* provides a statistical analysis and general information on forest products markets in the UN Economic Commission for Europe region, including Europe, North America and the Commonwealth of Independent States, for the period 2000 through mid-2001. The *Review* serves as a background document for the UNECE Timber Committee's annual market discussions, which this year will be held on 2 and 3 October. Furthermore it provides readers with the earliest comprehensive analysis on recent developments in the forest and forest product sector in the UNECE region and its trading partners.

The *Review* begins with an overview of all forest products markets, followed by an appraisal of economic conditions influencing the UNECE region, including construction-sector influences. In-depth discussion of sector developments, based on country-supplied statistics for 2000, is included for wood raw materials (primarily roundwood), sawn softwood, sawn hardwood, wood-based panels, woodpulp, pulp, paper and paperboard. Three additional, regular chapters are on markets for certified forest products, secondary processed wood products, including engineered wood products as well as tropical timber. These are the sectors covered in the Committee's annual market discussions.

Two special chapters are included in this year's *Review*: "Romania's forest products markets" and "Influences on Japanese demand for wood products". The *Review* continues to highlight the dynamic market of a selected country within the UNECE region. In addition, the series of chapters on one important forest products trading partner with the UNECE region continues, this year focusing on Japan.

The primary information for this *Review* comes from the responses to a questionnaire sent out jointly by the UNECE Timber Section, the FAO Forestry Department, EUROSTAT and ITTO (see "data sources"). For the first time, the *Review* analyses two subregions of Europe: EU/EFTA and "Other Europe", basically the central and eastern European countries plus Turkey. In addition to the primary data, the *Review* is based on a wealth of secondary data obtained though forest products marketing experts, trade journals, trade associations and annual reports as cited in the text. Readers' suggestions for additional sources of information are welcome.

Increasingly valuable market information is available on the World Wide Web and we thank the generous contributors who provide information for international use. A Market Information Service has been established and is being developed on the Timber Committee website at: http://www.unece.org/trade/timber/mis.htm. This *Review* may be found there, along with the TIMBER database on which this publication is based.

The analysis included here was performed in a concentrated period due to delays in receiving and preparing statistics for the analysis. As of this year there was no attempt to meet the deadline for translation, preparation, printing and distribution of versions in French or Russian in preparation for the Timber Committee market discussions. However, we will attempt to provide an executive summary, ideally in three languages, on the website and in print at the market discussions. At this time we do expect that the *Review* will be translated, printed and distributed in French and Russian; however, there are currently discussions to end translation of this publication. Readers who depend on French and Russian versions are encouraged to voice their support of continuation of translation via the reader survey.

The *Review* will be complemented in October 2001 by the *Timber Bulletin* number 6, "Forest Products Markets in 2001 and Prospects for 2002", which will contain the results of the Timber Committee's market discussion. All statistics collected in the joint UNECE/FAO/EUROSTAT/ITTO questionnaire are presented systematically in issue number 2, *Forest Products Statistics, 1996-2000*. The other issues of the *Timber Bulletin* are listed at the end of the *Review*.

We welcome your feedback via the attached reader survey on this *Review* and its changes.

ACKNOWLEDGEMENTS

It is with pleasure that we acknowledge the contributions of the people who directly and indirectly made possible the production of this *Forest Products Annual Market Review, 2000-2001*. While we name some people directly below, we know that often there are other contributors working with them, or companies or institutions which made their time and travel funds available, and we of course appreciate them. The vast majority of the contributions for the *Review* were either donated or contracted for the authors' direct expenses.

In addition to those named below, numerous other experts helped on specific parts of the *Review* and their names are mentioned in the following list of contributors. The *Review* is based on statistics received from official country correspondents and while not listed here, they are listed in the companion *Timber Bulletin* on "Forest Products Statistics, 1996-2000". Our sincere appreciation goes to these people without whose efforts we would not have been able to produce this *Review*. The UNECE Timber Committee and FAO European Forestry Commission established a new informal network of nominated country correspondents on certified forest products markets and certification of sustainable forest management. We thank those correspondents who contributed information for the chapter on certified forest products markets.

"Romania's Forest Products Markets" is the continuation of the *Review* series of special chapters focusing on one UNECE region country. We thank Mrs. Constanta Istratescu, Scientific Secretary, National Institute of Wood, Bucharest, Romania, for coordinating and producing this chapter, with its insight into the forest and forest industry sector in Romania. We appreciate the contributions of the co-authors, Mrs. Aurica Sereny, Deputy General Director, Ministry of Industry and Resources and Mr. Gheorghe Parnuta, Scientific Secretary, Forest Research and Management Institute, Romania. And we would like to express our gratitude to all the other people in Romania who provided information and statistics, drafted the graphics and translated the first draft.

"Influences on Japanese Demand for Wood Products" is a chapter continuing the *Review* series highlighting an important forest products trading country from outside the UNECE region. We would like to thank Drs. David Cohen, Associate Professor, Department of Wood Science, University of British Columbia, Christopher Gaston, Group Leader, Markets and Economics, Forintek Canada Corporation and Robert Kozak, Assistant Professor, Department of Wood Science, University of British Columbia, Vancouver, Canada. The authors' experiences in Japan have given valuable insight into the demand drivers for Japan's wood imports.

In addition we recognize Drs. Gaston and Kozak for writing the sawn softwood chapter. This is the first time that in a decade that the chapter has been written by an author outside of the secretariat. The part of the chapter on the United States-Canada Softwood Lumber Agreement turned out to be politically sensitive and we would like to express appreciation for the contributions on that subject by Mr. Jeffrey Serveau, Manager, Strategic Issues, Industry Division, Canadian Forest Service, Natural Resources Canada (who also is the Chairman of the UNECE Timber Committee) and Ms. Nancy Segal, Softwood Lumber Division, Department of Foreign Affairs and International Trade, Canada. Mr. Henry Spelter, Research Forester, Forest Products Laboratory of the USDA Forest Service, who worked simultaneously in Geneva with Drs. Gaston and Kozak, also reviewed this chapter.

We express our gratitude to Dr. Ewald Rametsteiner, from the Institute of Forest Sector Policy and Economics, Vienna, an Expert on Certified Forest Products Markets, wrote the chapter on the same subject. Dr. Rametsteiner based the chapter on his own knowledge, plus information gathered from the initial returns of a survey of the above-mentioned informal network of country correspondents on the markets for certified forest products.

For the chapter on "Secondary Processed Wood Products Markets, including Engineered Wood Products", we would like to express our appreciation to its four authors. The half on secondary processed products was written by Dr. Roger Cooper, Head of School, School of Agricultural and Forest Sciences, University of Wales, Bangor, Wales, United Kingdom, and Ms. Stella Xenopoulou, Consultant, Wood and Furniture Industry Consultants. For engineered wood products, like last year, the section was co-authored by Mr. Craig Adair, Director, Market Research, APA-The Engineered Wood Association, Tacoma, Washington and Dr. Al Schuler, Research Economist, Northeast Forest

Experiment Station, USDA Forest Service, Princeton, West Virginia. Dr. Schuler also was the main author, along with Mr. Adair, of the section on North American housing construction developments in the economic chapter. We express our gratitude to these four authors for the attention they bring to the importance of further-processed products. (Heretofore the *Review* focused only on primary products.)

We thoroughly appreciate the continued cooperation with our colleagues in International Tropical Timber Organization (ITTO), Drs. Steve Johnson, Statistician/Forest Economist, and Michael Adams, Market Information Service Coordinator, now joined by Ms. Masaki Miyake, Statistical Assistant, who have summarized tropical timber markets.

For the paper, paperboard and woodpulp chapter we would like to acknowledge the contributions of Dr. Peter J. Ince, Research Forester, USDA Forest Service, United States Forest Products Laboratory, who was the principal author and who coordinated the contributions of the two co-authors, Professor Eduard L. Akim, PhD, Saint Petersburg State Technological University of Plant Polymers and the All-Russian Research Institute of Pulp and Paper Industry and Mr. Bernard Lombard, Recycling and Economics Manager, Confederation of European Paper Industries (CEPI). Mr. Lombard was assisted by Mr. Eric Kilby, Statistics Manager, at CEPI and we thank simultaneously Ms. Marie Arwidson, Director General of CEPI, for facilitating this collaboration.

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This *Review* was produced as a joint effort by 33 people. Ed Pepke led and coordinated the work. The individual chapters had the following authors: 1. Ed Pepke; 2. Kit Prins (drawing on the *Economic Survey of Europe*, prepared by the UNECE Economic Analysis Division), plus for the construction section, Al Schuler and Craig Adair (United States); 3. Constanta Istratescu, Aurica Sereny and Gheorghe Parnuta (Romania); 4. David Cohen, Christopher Gaston and Robert Kozak (Canada), 5. Ed Pepke based on statistical analysis by Volker Sasse ; 6. Christopher Gaston and Robert Kozak (Canada); 7. Michael Buckley (United Kingdom); 8. Jorge Najera and Henry Spelter (United States); 9. Peter Ince (United States), Eduard Akim (Russian Federation) and Bernard Lombard (CEPI); 10. Ewald Rametsteiner (Austria); 11. (first half) Roger Cooper (Wales, United Kingdom) and Stella Xenopoulou (Ireland) and (second half), Craig Adair and Al Schuler (United States); 12. Steve Johnson, Michael Adams and Masaki Miyake (ITTO). Alex McCusker produced the statistics, wrote some statistics-related passages and proofread. Graphics production and market research were by Noora Kettunen and Anton Kiiskinen (Finland). Romi Chopra, who wrote the new *Layout and Editing Guidelines*, was responsible for the layout of the text, tables and graphs, as well as performing all administrative actions. She was assisted at the end by Violet Yee. Sefora Kifle prepared price data and supported authors with documents and journals. Christina O'Shaughnessy was the principal copy editor, and she also proofread the publication. Jim Bourke (FAO) contributed to the content editing during the FAO review step. Most content editing was done by Ed Pepke and Kit Prins.

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DATA SOURCES

The data on which the *Review* analysis is based are collected from official national correspondents[1] through the FAO/ECE/Eurostat/ITTO Joint Forest Sector Questionnaire. Within the 55-country ECE region, data for the 19 EU and EFTA countries are collected and validated by Eurostat and for other ECE countries by ECE/FAO Geneva.

Distributed in April 2001, the questionnaire requested data for 1999 and 2000. Revised in light of 2000 experiences, it: 1. redefined sawnwood (excluded sleepers), 2. redefined roundwood (excluded poles). The new definitions have inevitably introduced some discontinuities into the data series, not all of which could be resolved before publication. Therefore in some instances data are not comparable with pre-1999 series. The secretariats are working with national correspondents, to whom we are grateful for their valuable assistance, to resolve discrepancies. National correspondents met in May 2001 to discuss experiences in completing the questionnaire and to clarify points in the revised questionnaire. Follow-up meetings are envisaged.

The statistics for this *Review* are from the TIMBER database system. As the database is continually being updated, any one publication's analysis is only a snapshot of the database at that particular time. The database and questionnaires are in a state of permanent development. Data quality differs between countries, products and years. So far, only a few countries of the CIS sub-region provide data although the largest producer (Russian Federation) does do so. Improvement of data quality is a continuing task of the Secretariat, paying special attention to the CIS and Central and East European countries. With our partner organizations and national correspondents, we strongly believe that the quality of the international statistical base for analysis of the forest products sector is steadily improving. Our goal is to have a single, complete, current database, validated by national correspondents, with the same figures available from FAO in Rome, Eurostat in Luxembourg, ITTO in Yokohama and ECE/FAO in Geneva. We are convinced that the data set used in the *Review* is the best available anywhere as of July 2001. The data appearing in this publication form only a small part of the total data available. *Forest Products Statistics* (Timber Bulletin #2) will include all the data available for the years 1996-2000. The TIMBER database is available on the Market Information Service of the Timber Committee website at www.unece.org/trade/timber/mis.htm.

The secretariat is grateful that correspondents provided actual statistics for 2000 and, in the absence of formal statistics, their best estimates. Therefore all statistics for 2000 are subject to confirmation next year. The statistics received for 1999 and 2000 are the most reliable and interesting part of the data set and this *Review* analysis focuses on the change between these two years.

The responsibility for national data lies with the national correspondents. The official data supplied by the correspondents account for the great majority of records. In some cases, where no data were supplied, or when data were confidential, the Secretariat has estimated figures to keep region and product aggregations comparable and to maintain comparability over time. Sometimes unofficial data (e.g. from industry associations) are used, sometimes data for earlier years are simply repeated. Estimates are distinguished from official statistics in this *Review*. When estimates occur the figure is identified as an estimate (E) or a repeated figure (R). Product or regional aggregates that contain estimates are, however, not identified. See the annex for a graphic list of aggregates. In addition, roundwood, sawnwood, veneer sheets and plywood are further split into hardwood and softwoods which means that, for example, aggregate plywood figures will not be flagged as estimates.

Data for Belgium and Luxembourg are combined through 1998 while for 1999 and 2000 the data are reported separately.

Part of the information in chapter 10 on certified forest products came from the initial 14 returns of a survey of the new network of (officially-nominated) country correspondents on certified forest products markets and certification of sustainable forest management.

In addition to the official statistics received by questionnaire, trade association and government statistics are used to complete the analysis for 2000. A number of trade journals and internet sites were used for supplementary information, as well as institutions and experts, including national correspondents. Most of these sources are cited in the text and in the annex.

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[1] Correspondents are listed in the companion *Timber Bulletin*, "Forest Products Statistics, 1996-2000".

EXPLANATORY NOTES

"Apparent consumption" is calculated by adding a country's production to imports and subtracting exports. Apparent consumption volumes are not adjusted for levels of stocks because all countries cannot report stocks.

"Net trade" is the balance of exports and imports and is positive for net exports, i.e. when exports exceed imports, and is negative for net imports, i.e. when imports exceed exports. Trade data for fifteen European Union countries include intra-EU trade, which is often estimated by the countries. Export data usually include re-exports.

The term "central and eastern Europe countries", used exclusively for presentational convenience, includes Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia, The former Yugoslav Republic of Macedonia and Yugoslavia.

This year, Europe has been split into "EU/EFTA" (19 countries) and "Other Europe" (34 countries). For a breakdown of the regions please see the map in the annex.

The term "softwood" is used synonymously for "coniferous." "Hardwood" is used synonymously for terms "non-coniferous" or "broadleaved" wood. More definitions appear in the annex.

SYMBOLS AND ABBREVIATIONS USED

-	nil or negligible
...	not available
E	estimated statistic by secretariat
R	repeated statistic from previous year
P	provisional statistic
$	United States dollar unless otherwise specified
C$	Canadian dollar
CIS	Commonwealth of Independent States
CEECs	Central and eastern European countries
ECE	Economic Commission for Europe
EFTA	European Free Trade Association
EQ	equivalent of wood in the rough
EU	European Union
EWP	engineered wood products
FAO	Food and Agriculture Organization of the United Nations
FOB	free on board
GDP	gross domestic product
IMF	International Monetary Fund
kph	kilometres per hour
m2	square metre
m3	cubic metre (solid volume of roundwood or processed product)
m.t.	metric ton
N.A.	Not applicable
NIEs	Newly industrializing economies
OPEC	Organization of Petroleum Exporting Countries
SPWP	secondary processed wood products
sq	square
UNECE	United Nations Economic Commission for Europe
USDA	United States Department of Agriculture
WWF	World Wide Fund for Nature

Chapter 1
Overview of forest products markets in 2000 and early 2001

Highlights

- Consumption of forest products continued to climb to new records in 2000 in the region covered by the United Nations Economic Commission for Europe (UNECE), despite a slight downturn in North America.
- European forest products trade and production accelerated in 2000 in response to strong demand within the EU/EFTA subregion, growing consumption in central and eastern Europe and rising demand outside Europe.
- Strong housing construction in North America fostered growth in the panel sector; however, a mid-2000 peak in sawnwood production, combined with a downturn in the paper and pulp sector, may signal an end to the long-term rise in consumption of total forest products.
- December 1999 windstorms in western Europe felled almost 200 million m^3 of roundwood, the equivalent of two years' harvest in the most affected countries, causing chaos in forests and timber markets, especially for logs and pulpwood, but lesser effects on other downstream sectors.
- Excess roundwood supply in Europe depressed prices in 2000 and 2001 and despite strong domestic and export demand, sawnwood prices moved lower too.
- North American sawn softwood prices exhibited cyclical trends, rising from near record lows in mid-2000 to shoot up again in early 2001, in part due to the expiration of the United States – Canada Softwood Lumber Agreement (however, sawn softwood prices were falling again in mid-2001).
- Russian Federation forest products consumption showed the first signs of recovery in 2000, rising 7%, despite significantly higher exports of paper and wood products, boosted partly by a weaker rouble.
- Central and eastern European countries forest products markets generally outperformed other subregions of the UNECE, but on substantially smaller volumes.
- After the peak in mid-2000 of the global business cycle, North American and European economies slowed considerably, which, together with currency fluctuations, especially the strengthening dollar and weakening euro, negatively affected international trade in the second half of 2000 and 2001.
- Certified forest land area doubled from 2000 to 2001, to reach 80 million hectares in the UNECE region.
- In Europe, PEFC-labelled certified forest products became available in 2000 in addition to FSC-labelled products; SFI-labelled products are expected in North America later in 2001.

1.1 Forest products market developments in the UNECE region

Forest products markets escalated to new heights in 2000 in the UNECE region.[1] Wood-based panels consumption rose throughout the UNECE region, out distancing all other primary forest products sectors with a gain of over 5%, to a record 121 million m^3 (table 1.1.1). Consumption of sawnwood rose by 1.7% to an all-time high of 304 million m^3, with stronger European consumption outweighing a slight downturn in North American sawn softwood consumption (hardwood consumption rose universally in the UNECE region). Reflecting a mid-year downturn in demand as the United States economy slowed, paper and paperboard (and woodpulp) markets stalled in 2000, and were not showing any indications of rebounding in mid-2001. Commensurate with the developments above, roundwood consumption rose by 4.4% in 2000.

Three major factors affected the region's forest products markets in 2000: (a) the December 1999 windstorms in the Europe which felled almost 200 million m^3 of roundwood; (b) the slowdown in the European and the United States economies – but not housing construction – coupled with the strengthening of the dollar; and (c) the rebounding exports from central and eastern European and CIS countries. These factors above are all reflected throughout the *Forest Products Annual Market Review, 2000-2001*.

The catastrophic December 1999 windstorms in Europe left in their wake the equivalent of three year's harvest on the forest floor in France and Switzerland. One year's harvest volume was downed by the three storms in the eight most affected countries (in order of volume lost): France, Germany, Switzerland, Sweden, Denmark, Poland, Austria and Lithuania. Overall in Europe the windthrown volume was equivalent to a half-year's harvest. The storm clean-up began immediately where timber was accessible and continues today. The surplus supply of sawlogs, veneer logs and pulpwood drove prices down and resulted in heightened trade, both within Europe and offshore. Ramifications were not immediately apparent in the early statistics on which the special chapter analysis was based in last year's *Review*, but with full 2000 statistics the profound effects of the storm damage can be seen pervading primary forest products markets beyond roundwood, especially sawn softwood and hardwood. Fortunately the European and export markets for logs and sawnwood were strong in 2000 and about a third of the windthrow was used. Some volumes are still in storage and even greater volumes have been uneconomical to remove from forests, or have been left intentionally for ecological reasons.

Reflecting the windthrow volumes and high demand for primary forest products, production of roundwood in the UNECE area climbed 5% in 2000 to 1.3 billion m^3. These volumes are about half of the net annual increment on forests available for wood supply as published in the recent Temperate and Boreal Forest Resources Assessment 2000. Roundwood trade exploded in 2000 in the EU/EFTA subregion, expanding by 50% as 2.6 million m^3 more were exported than in 1999. Imports rose higher yet, by 6.8 million m^3, a 19% increase over 1999, reaching 62.6 million m^3, 8 to 10 times more than the other subregions. Much of these imports are intra-Europe, e.g. as pulpwood from the Baltic Countries to Sweden and Finland, but the imports from outside Europe are growing too, e.g. pulpwood from Russia and Brazil.

North American consumption of primary products fell overall by 1.0% in 2000, a drop of 7.6 million m^3 in roundwood equivalent. However, this total masks gains to record levels in consumption of wood-based panels, sawn hardwood and secondary processed wood products. The slight drop in consumption hides the fact that North America had the highest average unit value prices in the region for exports of industrial roundwood, sawnwood (hardwood and softwood), particle board and OSB, and newsprint. Commensurate with a decline in sawn softwood production, sawlog consumption fell accordingly.

This year's analysis of forest products markets in Europe investigates the differences in the magnitude of short-term trends between the EU/EFTA subregion and in the "Other Europe" subregion (principally the central and eastern European countries and Turkey). For all primary forest products combined, the consumption in "Other Europe" rose by 10.4% to reach almost 76 million m^3, while consumption in the EU/EFTA subregion rose less, by 3.8%, but on considerably higher volumes, achieving 492 million m^3. It is important to note that many central and eastern European countries (CEECs) have moved out of the economic transition period and have re-established their forest products production and trade capacities, often with foreign investments. These improvements are finally evidenced in rising domestic consumption. A special chapter in this *Review* focuses on the markets of one such country, Romania, which like other CEECs, is dependent on expanding export markets for development of the domestic forest products industry. Throughout different product sectors this same pattern is repeated, i.e. fast growth in consumption, production and trade in CEECs, but on considerably lower volumes and values than in the EU/EFTA countries.

[1] Countries in the UNECE region and its subregions are listed in the annex.

TABLE 1.1.1

Apparent consumption of sawnwood[a], wood-based panels[b] and paper and paperboard in the UNECE region, 1997-2000

						Change 1999 to 2000	
	Thousand	1997	1998	1999	2000	Volume	%
EU/EFTA							
Sawnwood	m^3	82,046	89,206	88,779	93,958	5,179	5.8
Wood-based panels	m^3	37,770	40,744	42,373	45,213	2,839	6.7
Paper and paperboard	m.t.	72,023	73,266	77,930	79,390	1,460	1.9
Total	m^3 EQ[c]	435,866	456,295	474,028	491,808	17,780	3.8
OTHER EUROPE							
Sawnwood	m^3	13,708	15,133	15,340	16,331	990	6.5
Wood-based panels	m^3	8,960	9,235	9,005	10,104	1,099	12.2
Paper and paperboard	m.t.	8,275	8,595	8,775	9,900	1,124	12.8
Total	m^3 EQ[c]	64,323	68,127	68,702	75,859	7,156	10.4
RUSSIAN FEDERATION							
Sawnwood	m^3	15,949	14,731	12,683	12,523	-160	-1.3
Wood-based panels	m^3	3,310	2,603	3,030	3,615	584	19.3
Paper and paperboard	m.t.	2,122	2,128	2,848	3,382	534	18.8
Total	m^3 EQ[c]	38,007	34,948	34,796	37,285	2,489	7.2
NORTH AMERICA							
Sawnwood	m^3	166,319	172,597	181,862	180,795	-1,067	-0.6
Wood-based panels	m^3	50,749	54,528	60,207	61,707	1,500	2.5
Paper and paperboard	m.t.	95,718	98,587	104,089	101,641	-2,448	-2.4
Total	m^3 EQ[c]	671,795	697,612	740,176	732,569	-7,607	-1.0

[a] Excluding sleepers.

[b] Excluding veneer sheets.

[c] Equivalent of wood in the rough. 1 m^3 of sawnwood and wood-based panels = 1.6 m^3, 1 m.t. paper = 3.39 m^3.

Source: UNECE/FAO TIMBER database, 2001.

CIS countries, based mainly on statistics received from the Russian Federation, reported the first gains in forest products consumption as a whole since the beginning of the transition process in 1991. In Russia the consumption of panels and paper and paper board both increased by approximately 19%. Consumption of sawnwood continued falling; however, exports of sawnwood rose 20%. In fact, in 2000, boosted by the devalued rouble, exports of most other products also increased: plywood by 7%, paper and paperboard by 17% and woodpulp by 21%. Roundwood production, of which 20% was exported, rose by 11%. Russia's pulp and paper sector experienced a significant recovery in 1999 and 2000, along with growing domestic and export demands. Exports of some paper and paperboard grades were half of production. Even with the increases in domestic consumption, production and exports, Russia remains below the pre-transition levels.

For all of Europe, sawn softwood markets registered record production in part due to the storm-downed volumes of sawlogs, and mostly due to a rise in consumption. However supply, increased by imports from CIS and other supply regions, outstripped demand in Europe and prices generally fell from 2000 into 2001. A growing portion of the European production is being exported to Japan, other Asian markets including China, and the United States owing to favourable exchange rates in 2000 and 2001. Despite increasing exports out of Europe, the EU/EFTA subregion remains a net importer of sawnwood. When the rapidly expanding exports from "Other Europe" are added to those of the EU/EFTA subregion, Europe as a whole is a net exporter, with about

75% being traded within Europe and 25% being exported out of Europe.

North American sawn softwood markets were marked by the expiration of the United States – Canada Softwood Lumber Agreement in March 2001. The agreement, which had been in existence since 1996, had regulated Canada's exports to the United States and had influenced prices. North American sawn softwood prices were near record lows when the *Review* was written in summer 2000, but they rebounded in early 2001 as the end of the Agreement came closer. In the summer of 2001, Canadian exports, which are roughly one third of the United States consumption, have slowed as United States industry groups have initiated action to again control the Canadian imports. United States housing remains strong with 1.6 million houses built in 2000, of which over 90% are wood-framed, and the same levels are forecast in 2001 and 2002, despite the slowdown in the North American economies and the recession in the United States manufacturing sector in 2001.

Sawn hardwood consumption rose again throughout the UNECE region, to record levels in the United States and Europe, as demand for hardwood furniture, millwork and mouldings came from new housing construction and remodelling and repair. United States sawn hardwood consumption, for furniture, cabinets and flooring, rose over 2% to reach 33 million m^3, while the EU/EFTA subregion rose by almost 8% to reach 15 million m^3. Consumption in "Other Europe" rose less, by 3% to 4 million m^3. Demand softened in the United States, as reflected by prices near the end of 2000 and into 2001. Likewise in Europe, lower demand at the end of 2000 and early 2001, coupled with the increased production from windthrow losses, resulted in falling sawn hardwood prices. China and other Asian countries have increased imports of sawn hardwood from the UNECE region, although some of that wood is returned in the form of value-added products such as furniture. In North America in mid-2001 there were indications that the record levels of production, consumption and trade would not be repeated in 2001.

The panel market is divided into structural panels, e.g. OSB and softwood plywood, and non-structural panels, e.g. MDF and particle board. These two sectors exhibited divergent trends in the subregions of UNECE. MDF drew all panel markets up again in 2000, but a slowdown in capacity expansion is forecast in Europe in 2001 for the first time, and North America. MDF has found increasing acceptance in new uses, in addition to the preference it has earned in furniture manufacturing. The other main non-structural board, particle board, is truly a European product as production in 2000 rose by over 4% to a record 29 million m^3, in comparison to stable production in North America at 13 million m^3 (all statistics without OSB). Trade of particle board in Europe was active in 2000, especially in the CEECs, but subdued in North America. With the strong dollar the United States imported more furniture, cabinets and other secondary processed wood products, which was reflected in domestic furniture plant closings, and a weakened demand for non-structural panels.

Structural panels showed opposite trends. OSB production in North America and Europe rose to new records by 2.3% to reach 18 million m^3 and by 54% to reach 1.4 million m^3. OSB continued substituting for softwood plywood for construction in North America, recording a 75% market share in sheathing. Meanwhile in Europe, the utilization for residential construction is less, although it is starting in some countries with the advent of wood-framed housing techniques. The increased production of OSB (and MDF) in 2000 led to a price collapse in North America.

Production of engineered wood products increased in 2000, especially for glulam beams, which increased worldwide by 19% over 1999, to a record 3.1 million m^3. For UNECE region producers the main export market is Japan, where approximately 55% of the market is imported, primarily from Europe, but also from North America and the Russian Federation, sometimes as glulam stock, i.e. sawnwood for manufacturing glulam[2]. Although wooden I-beams have gained a 33% market share of the North American new residential construction flooring, production fell by 3% in 2000, mainly because lower-priced sawnwood joists (beams) were substituted. As approximately 60% of North American LVL (laminated veneer lumber) production is used as flanges in the I-beams, production of LVL fell by 6% to 1.4 million m^3.

In 2000, European paper, paperboard and pulp manufacturers registered a record year, benefiting from the weak euro and the strong dollar on which these products are traded internationally. In contrast, North American producers faced a market reversal in mid-2000 and the record profits in the first half of 2000 eroded. This continued in light of weak global demand in 2001, producing the first protracted decline since 1996. Paper, paperboard and woodpulp markets showed some of the earliest signs of the forthcoming economic slowdown. This turn of events is reflected in paper, paperboard, recovered paper and woodpulp prices, which fell from peak levels in early 2001. Accordingly some capacity adjustments were taking place in the UNECE region, although some new capacity is being added in China and

[2] This and other trends affecting UNECE region exports to Japan are the subject of a special chapter on Japan's market drivers.

other Asian countries, and some capacity is being restored or built in the Russian Federation.

In 2000 the tropical timber market continued to recover from the steep downturn of the 1997 and 1998 Asian crises. However, owing to softening economies in major tropical importing regions and countries (North America, EU/EFTA and Japan) in mid-2001, the full recovery may not be attained this year. Nevertheless, China is having greater influence on the tropical timber trade, currently importing the most roundwood, and later possibly the most primary processed products. The UNECE region increased its imports of tropical sawnwood in 2000. The tropical timber trade is orienting itself away from primary products and towards secondary processed wood products.

World trade of secondary processed wood products is expanding faster than trade of primary products, with five countries accounting for 60% of the imports: United States, Germany, France, United Kingdom and Japan. The initial effects of the shift of manufacturing of value-added wood products to low-cost labour regions are beginning to be seen in North America, as evidenced by furniture plant closures in 2001, as furniture imports increased.

Until now, markets for certified forest products (CFPs) have been constrained by supply, as well as final consumer demand. However in the last year, the area of forests certified for sustainable forest management doubled to 80 million hectares. Trade grew steeply too, especially in some environmentally-sensitive markets in the UNECE region. Demand continues to be driven by retailers and business-to-business markets, where advantages other than price premiums are currently important. Forest certification and certification of forest products is highly controversial, with strong opinions; however, positions are changing, and mutual recognition is established between some, but not all, schemes.

1.2 Globalization of forest products markets

A number of trends have been influencing forest products markets in the UNECE region in 2000 and 2001. Economic trends, the influence of the European storm's windthrow volumes and the emerging and re-emergence of central and eastern European and CIS markets were discussed above. However various globalization factors are continually affecting the UNECE region's forest products markets[3]:

- The switch to lower cost fibre from forest plantation regimes. Sourcing of new material is shifting to newly-emerging forest producing regions.
- Emerging economies with commensurate rising consumer demand.
- The information-communication-technology revolution affecting all facets of the forest and forest industries sector.
- Interaction and interdependence between markets, and in the case of wood products, the threat of substitution by less environmentally friendly and non-renewable products.
- Increasingly uniform prices for globally-traded wood products similar to the current situation for the commodity grades of paper and woodpulp.
- Increased capital mobility, continued "dollarization" of the world economy and investor portfolios seeking more global diversification. Investor preference for companies that focus on fewer products on a bigger scale.
- Improving transportation logistics, from harvesting to ocean transport, leading to reduced transportation costs which supports greater international trade.
- Larger buying groups, especially big home centre chains and retailers, sourcing wood products (primary, secondary and finished goods) on a global scale.
- A movement towards trade in value-added wood products is evolving in many countries, simultaneously with growing constraints in the export of unprocessed goods.
- Higher costs of labour in developed economies favouring a shift to more abundant, lower cost labour in developing countries, especially with enlargement of free trade areas.
- Changing international trade framework.
- Increasingly strong pressures concerning environmental issues. Forest certification is a natural outcome of globalization.
- Marketing groups for wood products are increasingly concentrated and getting larger. Their purchasing imperatives are becoming global.

[3] Most of the ideas in this section come from a paper in production for the keynote presentation at the 2-3 October 2001 Timber Committee market discussions by the authors, Mr. Marc Boutin, Director, International Trade, and Mr. Nsimba Kinuani, Director, both with the Quebec Lumber Manufacturers' Association, 1175, avenue Lavigerie, Sainte-Foy, Quebec, Canada, G1V 4P1. telephone +1 418 657 7916, fax +1 418 657 7971, e-mail: marc.boutin@sciage-lumber.qc.ca and nsimba.kinuani@pribec.com

Faced with these factors, some of which are advantages, others not, often depending upon who is looking at them, the response of the forest products industry is crucial. The Timber Committee believes in developing new products and growing markets. This is evidenced by its promotion of the environmentally friendly and renewable attributes of forest products.

Product development and integration is ongoing as commodity manufacturers seek to add value to their products. With a foreseeable sustained worldwide surplus in wood supply and potential additional wood products manufacturing, there will be increased competition for existing markets. In this context, stimulating demand will require a global effort not confined to already mature markets. Improved consumption levels of solid and reconstituted wood products in emerging markets are needed. The development of building systems which employ solid and reconstituted wood products is another. Finally, the use of wood products in non-residential construction is another avenue which could relieve the oncoming supply imbalance.

1.3 Timber Committee forecasts for 2001

At their joint session in October 2000 in Rome, the Timber Committee and European Forestry Commission forecast production, consumption and trade of forest products in 2000 and 2001. For European consumption of sawnwood they forecast a slight rise, 0.5%, in 2001 to reach 112 million m^3. Wood-based panels were forecast to grow faster, by 1.7%. The Committee's European consumption forecasts for 2000 were lower than the recorded volume. Export forecasts for 2000 were also low, perhaps underestimating the windstorm effects on forest products markets, and thus with the slowing market in mid-2001, the slight increase forecast for the year may be accurate.

North American forecasts for a downturn in sawn softwood consumption in 2000 were accurate. However, the weak economic signs in mid-2001 bring uncertainty for the 1% rebound forecast in 2001. Panel consumption was forecast to increase by 0.5% in 2001, which correlates with mid-year strength in housing construction. Roundwood production was forecast to rise similarly, by 0.6%.

The Committee and Commission forecast Russian Federation consumption, production and exports to improve for all product sectors in 2000, which in general came true. The forecasts for 2001 were again optimistic, i.e. for growth, although slower than in 2000.

Slowing economies in 2001 confirm the forecast trends. The Timber Committee will review these forecasts for 2001 and then forecast forest products markets in 2002 at its October 2001 session. Nevertheless, in mid-2001 it appears that the 2000 records in some subregions, especially in North America and EU/EFTA, will not be repeated, at least for some sectors in 2001.

Chapter 2
Economic factors affecting forest products markets in 2000 and early 2001

Highlights

- The global business cycle peaked in the first half of 2000, and growth rates in both North America and Europe were significantly lower in the second part of the year.
- The outlook for 2001 is for much slower growth, with considerably uncertainty.
- For the first time in a decade, all UNECE transition economies reported positive rates of economic growth in 2000, although so far only four countries have recovered pre-1989 levels.
- GDP growth in Russia was at 7.7% in 2000, but like other transition economies, it slowed in the second half of the year.
- Energy prices rose sharply in late 2000, but since then, the trend has been downward. This slowed growth in the region, but helped demand in energy exporters, notably Russia.
- Strength in the United States residential construction continued in 2001 and may have kept the country out of recession.
- While western European residential construction was declining slightly in 2000, central and eastern Europe was growing
- The December 1999 windstorms in Europe, which felled nearly 200 million m^3 of roundwood, elevated repair and remodelling expenditures in affected countries.

2.1 General economic developments

The analysis below is taken from the *Economic Survey of Europe*[1]. The full text of the *Survey* is available from the UNECE website[2]. The second part of this chapter focuses on construction developments.

2.1.1 Global overview

The global business cycle reached a peak in the first half of 2000, but there was an unexpectedly pronounced slowdown of economic growth in the second half of 2000. This development reflected to a large degree the abrupt cyclical downswing in the United States, and prompted the Federal Reserve to swiftly cut interest rates in January 2001. The effects of the cyclical downturn in the United States on world output growth were accentuated by the faltering recovery in Japan. These adverse developments have started to feed through via international trade to emerging markets in Asia and Latin America. In Europe, economic growth has held up relatively well so far, but there is also increasing evidence of a slowdown in economic growth in the final months of 2000.

The cyclical weakening in the second half of 2000 is not apparent from the annual figures for world economy. World output rose by some 4.5% in 2000, nearly 1 percentage point higher than in 1999, and the best performance for more than a decade. As in 1999, the United States was again the main engine behind this acceleration in global economic activity. Stronger output growth was accompanied by a more rapid expansion of international trade. World merchandise trade rose in volume by some 10% in 2000, double the rate in 1999. This reflected both the cyclical upturn in western Europe and Latin America and the continued strong demand for foreign goods in North America and in the emerging markets of Asia.

In Japan, a moderate cyclical upturn was not sustained in the second half of 2000. Real GDP fell between the second and third quarters and was only half a percentage point above its level of a year earlier. Industrial production turned increasingly sluggish in the second half of 2000 and unemployment continued to rise. Real GDP is estimated to have increased by about 1.7% in 2000.

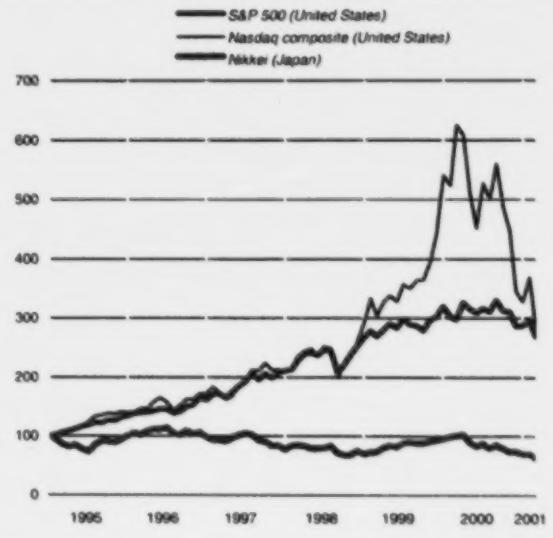
In Latin America and the Caribbean, economic activity picked up in 2000 after the adverse effects on the region's performance of the international financial crises in 1998-1999. Real GDP is estimated to have increased by 4% in 2000, up from a small increase of just 0.3% in 1999.

There was strong economic growth in the east Asian emerging markets in 2000, with annual growth rates of GDP ranging from some 8% in China and the Republic of Korea to some 4% in Indonesia. Exports were the main source of economic growth, reflecting both increased intraregional trade and robust demand from western Europe and the United States.

In the major international equity markets there was a marked shift in investors' sentiment in the second half of 2000. From late summer, the lowering of forecasts of economic growth for 2001 coincided with disappointing announcements of corporate profit developments, notably in the high-technology sector. This highlighted increasing concerns about the extraordinarily high valuation of stocks in this sector and triggered a massive sell-off. In the United States, the NASDAQ[3] had fallen by some 50% in February 2001 from its peak 12 months earlier (graph 2.1.1). Even after their recent fall, however, stock markets still appear to be overvalued when judged on the basis of long-term price earnings ratios.

The pattern of exchange rates among the three main world currencies has changed somewhat in recent months. Against the backdrop of weakening growth expectations for the United States and relatively better

GRAPH 2.1.1
International share prices, January 1995-February 2001
(Indices, January 1995=100)



Note: Data refers to end of month.
Source: *Reuters Business Briefing* (www.rbb.reuters.com), 2001.

[1] *Economic Survey of Europe*, Number 1, 2001. Economic Analysis Division, UNECE, Geneva, Switzerland.

[2] www.unece.org/ead/ead_h.htm

[3] The NASDAQ is a New York Stock Exchange index of technology stocks.

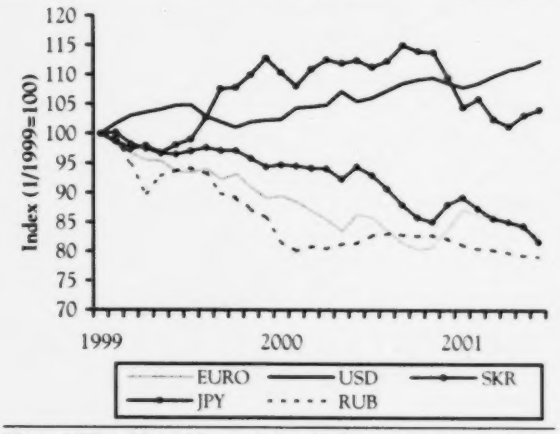
prospects for the euro area, the fall in the euro/dollar rate was arrested and has been partly reversed since late 2000 (graph 2.1.2). In February 2001, the euro had appreciated against the dollar on average by some 7.5% from its recent trough in October 2000. But compared with the average exchange rate in January 1999, there was still a sizeable depreciation of 21%. The euro has strengthened also against the yen in recent months. In February 2001, the euro reached its highest level against the yen since October 1999, a reflection of the worsening economic outlook for Japan. For the same reason, the yen has also depreciated significantly against the dollar since the final months of 2000. The strengthening dollar compared to other currencies in which timber is traded, e.g. euros, yen, Swedish *kronar* and Russian roubles, affected the timber trade in 2000 and the first half of 2001 (graph 2.1.3).

In the international oil market, the price of Brent crude rose to some $37 per barrel in early September 2000, its highest level in more than a decade (graph 2.1.4). But since then, the trend has been downward, although volatility continued to be high. The average price for the first two months of 2001 was approximately $26.50 per barrel, broadly unchanged from the same period of 2000.

2.1.2 *North America*

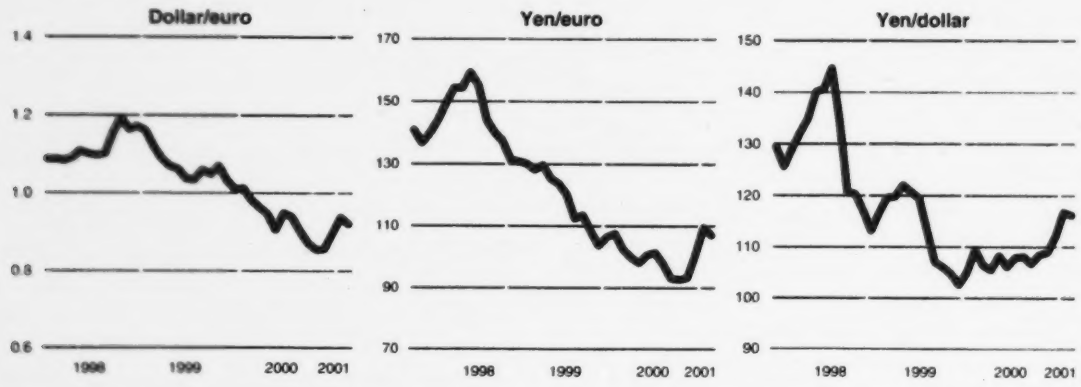
In the United States, real GDP rose by 5% in 2000. This was the highest annual growth rate since 1978, when the increase was 5.5%. But this very favourable outcome for the year as a whole masks a sharp deceleration in the rate of economic expansion in the second half of the year. Real GDP rose by only 0.3% in the final quarter, equivalent to a seasonally adjusted annual rate of 1.4%. This slowdown was mainly due to a considerable weakening of private domestic demand, which was only partly offset by increased government spending.

GRAPH 2.1.3
Real effective exchange rates of selected currencies, 1999-2001



Note : USD is United States dollar, SKR is Swedish kronar, JPY is Japanese yen and RUB is Russian ruble.
Source: International Monetary Fund, 2001.

GRAPH 2.1.2
Bilateral exchange rates between the euro,[a] the dollar and the yen, January 1998-February 2001
(Dollar, euro, yen)

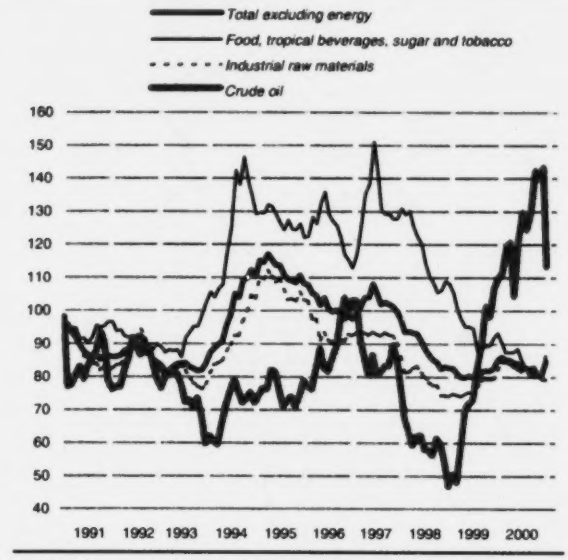


Note: Average monthly exchange rates.

a ECU before January 1999.

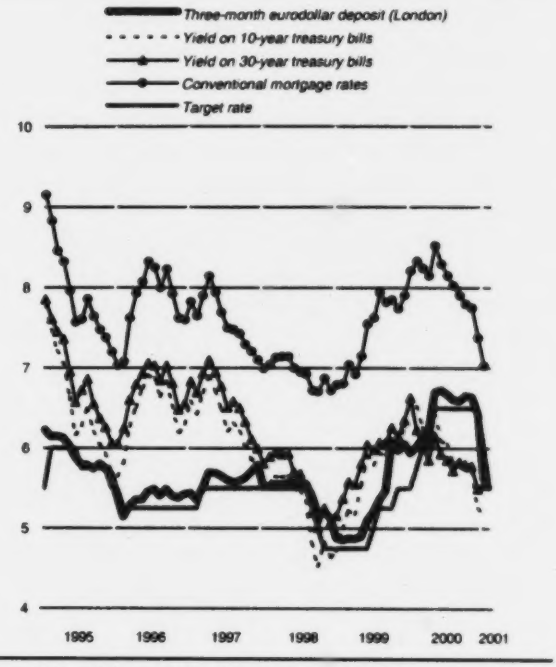
Source: European Central Bank, 2001.

GRAPH 2.1.4
World commodity prices, January 1991-February 2001
(Indices, 1990=100)



Notes: Indexes calculated on the basis of current dollar prices. Tropical beverages are coffee, tea and cocoa.
Source: Hamburg Institute for Economic Research, 2001.

GRAPH 2.1.5
Nominal short-term and long-term interest rates in the United States, January 1995-February 2001
(Per cent per annum)



Source: United States Federal Reserve Board, 2001.

Inflation edged up in 2000 largely because of higher prices for energy. For the year as a whole the consumer price index rose by 3.4%, but core inflation (i.e. without prices for food and energy products) was much lower at 2.4%.

The progressive tightening of monetary policy since mid-1999 continued in early 2000 when the target for the federal funds rate was raised in three steps to 6.5% in May (graph 2.1.5). Monetary policy remained on hold for the rest of the year, but faced with the unexpectedly sharp slowdown in economic activity in the final months of 2000, the target interest rate was cut swiftly to 5.5% in the course of January 2001. Mortgage interest rates fell steadily from spring 2000, from about 8.5% to around 7.0%.

Buoyant growth in federal government receipts by far outpaced growth in its expenditures in 2000. Thus, the surplus on the unified budget rose to $236 billion in fiscal 2000, about twice that in fiscal 1999. The financial surplus of the general government corresponded to 2¼% of GDP in 2000, up from 1% in the preceding year (table 2.1.1). Buoyant domestic demand for most of the year, together with the strong dollar, led to further rise in the merchandise trade deficit to $450 billion in 2000. This is the largest trade deficit on record, corresponding to 4.5% of GDP. The current account deficit was broadly similar and also at a record level.

In Canada, the economic boom continued in 2000 but the sharp slowdown in the United States economy started to have adverse effects on manufacturing activity in the final months of the year. Real GDP rose by 5% in 2000, up from 4.2% in 1999, but, as in the United States, there was a sharp slowdown in the rate of economic expansion in the second half of the year. Exports were the main source of growth, reflecting the expansion of demand in the United States for most of the year and the rising global demand for energy products and other commodities.

2.1.3 *Market economies of western Europe*

The overall economic performance in western Europe in 2000 was quite favourable if the year is taken as a whole. Real GDP rose by 3.5% compared with 2.2% in 1999. This was the best performance since 1988, when it increased by 3.6%. Robust economic growth led to strong gains in employment and declining rates of unemployment, while inflationary pressures remained very weak despite a sharp rise in oil prices (graph 2.1.6). But the very good average outcome masks a slowdown in the pace of expansion in the second half of the year. In the four major economies, real GDP rose at a quarterly rate of only 0.5% in the last two quarters of 2000,

TABLE 2.1.1
Annual changes in real GDP in western Europe, North America and Japan, 1998 to 2001
(Percentage change over previous year)

	1998	1999	2000[a]	2001[b]
France	3.3	3.2	3.2	2.7
Germany	2.1	1.6	3.0	2.1
Italy	1.8	1.6	2.9	2.5
Austria	3.3	2.8	3.3	2.6
Belgium	2.4	2.7	3.9	2.5
Finland	5.3	4.2	5.7	4.0
Greece	3.1	3.4	4.0	4.0
Ireland	8.6	9.8	10.0	7.5
Luxembourg	5.0	7.5	8.1	6.2
Netherlands	4.1	3.9	3.9	3.3
Portugal	3.6	3.0	3.2	2.6
Spain	4.3	4.0	4.1	3.0
Euro area	2.8	2.6	3.4	2.6
United Kingdom	2.6	2.3	3.0	2.5
Denmark	2.8	2.1	2.4	1.8
Sweden	3.6	4.1	3.6	2.5
European Union	2.8	2.6	3.3	2.6
Cyprus	5.0	4.5	4.9	4.1
Iceland	4.5	4.3	3.6	1.3
Israel	2.2	2.3	3.0	3.0
Malta	3.4	4.0	4.3	4.3
Norway	2.0	0.9	2.2	1.5
Switzerland	2.3	1.5	3.3	2.1
Turkey	3.1	-5.0	7.0	–
Western Europe	2.8	2.2	3.5	2.5
Canada	3.3	4.5	4.7	2.4
United States	4.4	4.2	5.0	1.7
North America	4.3	4.3	5.0	1.8
Japan	-1.1	0.8	1.7	1.2
Total above	2.8	2.8	3.8	2.0
Memorandum items:				
4 major western European economies [c]	2.4	2.1	3.0	2.5
Western Europe and North America	3.6	3.2	4.2	2.1

Note: All aggregates exclude Israel. Growth rates of regional aggregates have been calculated as weighted averages of growth rates in individual countries. Weights were derived from 1996 GDP data converted from national currency units into dollars using purchasing power parities.

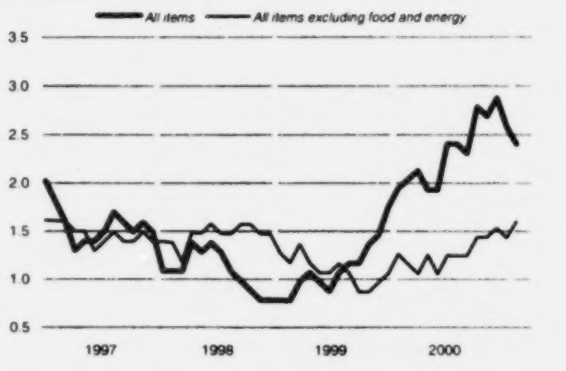
a Preliminary estimates or forecasts.

b Forecasts.

c France, Germany, Italy and United Kingdom.

Sources: National statistics and national economic reports, 2001.

GRAPH 2.1.6
Consumer prices[a] in the euro area, January 1997-January 2001
(Percentage change over same month of preceding year)



a Harmonized Index of Consumer Prices (HICP).

Source: Eurostat, 2001.

equivalent to a seasonally adjusted annual rate of some 2%. This compares with an average annual rate of some 3.5 in the first two quarters.

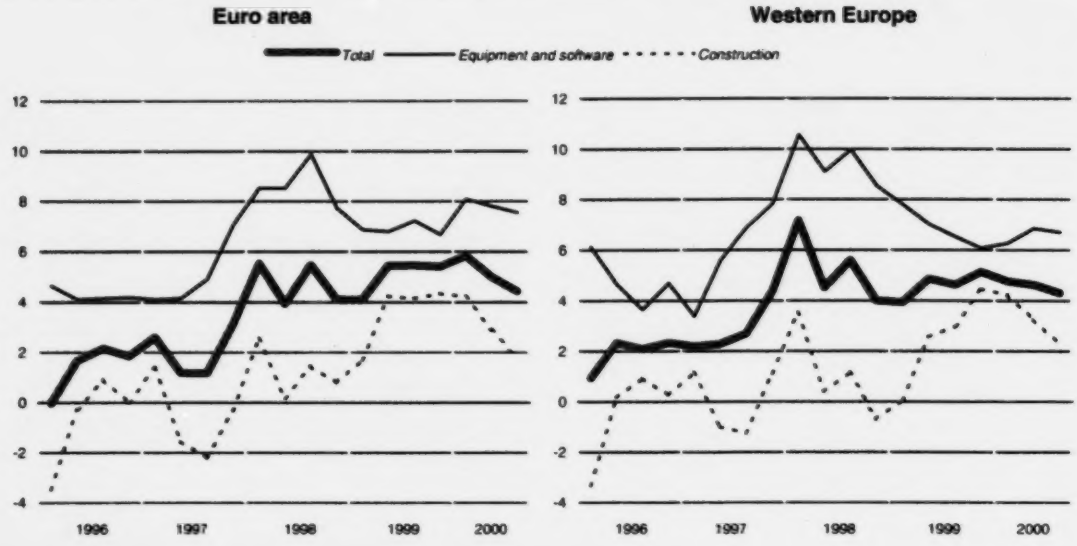
Short-term economic prospects have become much more uncertain in early 2001. The outlook increasingly depends on the resilience of domestic growth forces to the deteriorating external economic environment and on western European policy responses. The rate of growth of gross fixed capital formation in construction – a major indicator of the strongest influence on consumption of sawnwood and panels – fell by two percentage points during 2000 for western Europe (graph 2.1.7).

The relatively short cyclical upswing phases for the euro area (and for western Europe) as a whole disguises much longer periods of expansion in some of the smaller economies. Thus, for Finland, Ireland, the Netherlands, Portugal and Spain, 2000 was the seventh consecutive year of a strong economic expansion, probably the strongest boom period in the post-war period. In Finland and Ireland, economic activity continued to be supported by extraordinarily strong growth in the high-tech electronics sector. In Greece, which joined the euro area at the beginning of 2001, there has also been above average growth since 1997. The stronger average annual growth rate of GDP in the euro area in 2000 was due to the growth in real net exports, which more than offset a slowdown in the growth of total domestic expenditures.

Among the three largest economies in the euro area, the pace of economic activity maintained a high momentum in *France* in the course of 2000. Robust growth has been accompanied by large gains in employment. Consumer price inflation remained moderate and significantly below the euro area average. Exports and business fixed investment were the most dynamic components of demand in 2000. Residential investment weakened in the course of the year.

In Germany, there was a sharp slowdown in the rate of economic expansion in the final two quarters of 2000. This slowdown reflects to a large degree the dampening

GRAPH 2.1.7
Quarterly changes in real gross fixed capital formation, 1996-2000 (third quarter)
(Percentage change over same period of preceding year)



Note: Euro area: nine countries (excluding Greece, Ireland and Portugal). Western Europe: euro area plus Denmark, Norway, Sweden, Switzerland and the United Kingdom.

Sources: Eurostat; OECD, *National Accounts*; national statistics, 2001.

effects of the higher prices for energy products on households' purchasing power. Weak construction activity continues to dampen overall economic growth: for 2000 as a whole, construction investment fell by 2.5%, the net effect of declines of 8% in eastern Germany and only 0.5% in western Germany. The sharp fall in construction investment in eastern Germany mainly reflects the large excess supply of buildings created in the aftermath of unification, a process which was stimulated by overly generous government subsidies.

In Italy, the recovery which had started in the second half of 1999 continued in 2000, the improvement entirely due to favourable changes in net exports. Total domestic expenditure growth actually slowed down in 2000, although business investment was relatively buoyant in machinery and equipment.

Outside the euro area, in the United Kingdom, the rate of economic expansion also slowed down markedly in the second half of 2000. The main factor behind this deceleration was a pronounced inventory adjustment. For the year as whole, real GDP rose by 3%. Robust private consumption, supported by a sharp drop in the savings rate, was the mainstay of economic growth in 2000 as a whole.

2.1.4 *Transition economies of central and eastern Europe*

For the first time in a decade all UNECE transition economies reported positive rates of economic growth in 2000 (table 2.1.2). The very high average rate of GDP growth for the region as a whole was largely due to the unexpectedly strong recovery in Russia; economic growth rates were at their highest in a decade in a number of other countries as well. All transition economies benefited from the strong demand in their major export markets, and commodity exporters had windfall gains from the surge in world market prices and the improvement in their terms of trade. Most CIS economies benefited from the recovery in Russia's domestic demand, which gave a strong impetus to their exports and contributed to a general revival of intra-CIS trade. While the outcomes in 2000 were rather favourable for the transition economies, their very high dependence on external demand and world markets also point to the potential risks of adverse shocks.

TABLE 2.1.2
Basic economic indicators for eastern Europe, the Baltic states and the CIS, 1998-2001
(Rates of change and shares, per cent)

	GDP (growth rates)			
	1998	1999	2000	2001 official forecast
Eastern Europe	1.8	1.3	3.9	4.2
Albania	8	7.3	8*	5-7
Bosnia and Herzegovina [a]	..	..	10*	7-9
Bulgaria	3.5	2.4	5.0*	5
Croatia	2.5	-0.4	3.7	3-4
Czech Republic	-2.2	-0.8	3.1	3
Hungary	4.9	4.4	5.2	4.5-5
Poland	4.8	4.1	4.1	4.5
Romania	-5.4	-3.2	1.6	4.1
Slovakia	4.1	1.9	2.2	3.2
Slovenia	3.8	5.2	4.8	4.5
The former Yugoslav Republic of Macedonia	2.9	2.7	5.1	6
Yugoslavia [b]	2.5	-19.3	10.0	5
Baltic states	4.7	-1.8	5.0	4.7
Estonia	4.7	-1.1	6.4*	6
Latvia	3.9	1.1	6.6	5-6
Lithuania	5.1	-3.9	3.3	3.7
CIS	-3.0	3.2	7.4	4.2
Armenia	7.3	3.3	6.0	6.5
Azerbaijan	10.0	7.4	11.4	8.5
Belarus	8.4	3.4	5.8	3-4
Georgia	2.9	3.0	1.9	3-4
Kazakhstan	-1.9	2.7	9.6	4
Kyrgyzstan	2.1	3.7	5.0	5
Republic of Moldova [c]	-6.5	-3.4	1.9	5
Russian Federation	-4.9	3.5	7.7	4
Tajikistan	5.3	3.7	8.3	6.7
Turkmenistan	5.0	16.0	17.6	16
Ukraine	-1.9	-0.4	6.0	3-4
Uzbekistan	4.4	4.4	4.0	4.4
Total above	-1.1	2.4	6.0	4.2
Memorandum items:				
CETE-5	3.2	3.0	4.0	4.1
SETE-7	-1.5	-3.0	3.6	4.5
Former GDR	2.0	..	..	..

Note: Aggregates are UNECE secretariat calculations, using purchasing power parties obtained from the 1996 European Comparison Programme. Output measures are in real terms (constant prices). Forecasts are those of national conjunctural institutes or government forecasts associated with the central budget formulation. Industrial output refers to gross output, not the contribution of industry to GDP. Inflation refers to changes in the consumer price index. Unemployment generally refers to registered unemployment at the end of the period (with the exceptions of the Russian Federation where it is the Goskomstat estimate according to the International Labour Organisation definition, and Estonia where it refers to job seekers). Aggregates shown are: *Eastern Europe* (the 12 countries below that line), with sub-aggregates *CETE-5* (central European transition economies: Czech Republic, Hungary, Poland, Slovakia, Slovenia) and *SETE-7* (south-east European transition economies: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Romania, The former Yugoslav Republic of Macedonia and Yugoslavia); *Baltic States* (Estonia, Latvia, Lithuania); and *CIS* (12 member countries of the Commonwealth of Independent States).

a Data reported by the Statistical Office of the Federation; these exclude the area of Republika Srpska.

b Data for 1999 and 2000 exclude Kosovo and Metohia.

c Excluding Transdniestria.

* Estimate.

Sources: National statistics; CIS Statistical Committee; direct communications from national statistical offices to UNECE secretariat (IMF and World Bank data for Albania), 2001.

These positive economic outcomes suggest that after 10 years of painful reforms, the prolonged and deep transformational recession in these economies has for the most part come to an end. Divergent experiences in coping with this difficult phase, as well as in the deepening and widening of the reform process, has left the region much more heterogeneous than it was 10 years ago. Most central European and Baltic States have already made considerable progress in instituting a functioning market economy and have enjoyed several years of strong economic growth which has placed them among the leading candidates for EU membership. At the same time, in a number of other countries the transformational recession and the process of introducing basic reforms has turned out to be much longer and much more strenuous than initially expected. For some CIS economies 2000 was the first year of positive growth in a decade while in Yugoslavia real market reforms can only now get under way with the new, democratically elected Government.

The strong growth in the transition economies in 2000 is a positive and encouraging outcome; at the same time, however, it must be borne in mind that for a number of countries this represents only a meagre recovery after a long economic slump. In fact, after 10 years of reform only four economies (Hungary in 2000, Poland in 1995, Slovakia in 1999 and Slovenia in 1998) have managed to surpass their levels of GDP prevailing before the start of transformation. On average, the CIS economies are still some 40% below their GDP levels of 1989 and in a number of individual countries GDP in 2000 was less than half of what was being produced a decade ago.

It should also be emphasized that, with the exception of a few central European economies, domestic demand generally remains weak despite its moderate recovery in 2000. This reflects the fact that in a number of countries, especially in south-east Europe, central Asia and Caucasus, large sections of the population suffered considerable impoverishment during the prolonged recession, while investment fell dramatically in the face of

highly uncertain economic prospects. The falls in output and incomes in these economies are of such magnitude that it will probably take many years, if not decades, before the population at large begins to sense the positive outcomes of the reform process.

Nevertheless, as a result of the sweeping reforms of the past decade, most transition economies have established most of the basic institutions of a market economy and have liberalized their domestic markets and foreign trade (admittedly, to widely varying degrees). With the exception of a few CIS countries, the transition economies can now be considered as open economies that have the potential to benefit from their increased trade with the rest of the world. In fact, the growth figures for 2000 underline the gains from trade that are now possible for these economies.

For the first time since the start of their market reforms, the CIS was the fastest growing regional group among the transition economies: nine out of the 12 CIS economies had rates of GDP growth of 5% or more, resulting in an average of 7.4% for the Commonwealth as a whole. The main engine of the robust recovery in the CIS was the Russian economy where GDP grew by an unprecedented 7.7% in 2000. After a weak performance in 1999, output also recovered strongly in eastern Europe and in the Baltic states, their aggregate GDP increasing by 3.9% and 5%, respectively.

While the strong recovery in the transition economies was a positive and encouraging outcome, their performance in 2000 was largely driven by a sharp and externally driven cyclical component. The UNECE transition economies benefited significantly – although to varying degrees – from the strong and diversified demand in their major markets, in the first place for manufactured goods but also for a wide range of primary commodities and semi-manufactures. Competitive exchange rates and, more selectively, favourable world market price conditions added to this positive impact.

In many transition economies, strong growth in 2000 was accompanied by higher rates of inflation. In most cases where inflation was higher than expected (or higher than in 1999), this was largely due to higher import prices, especially for oil, and the subsequent general rise in energy and fuel prices.

The change of political regime in Yugoslavia has transformed the political and economic situation in the whole of south-east Europe. The new Government is now facing the daunting task of carrying out a plethora of difficult reforms after a decade of delays in the process. Nevertheless, the lifting of the outer wall of sanctions that followed the elections in Yugoslavia last December has improved the outlook for all the neighbouring countries which had suffered their side effects for a number of years. The EU has also signalled that all the successor States of the former Socialist Federal Republic of Yugoslavia, as well as Albania, will now be considered as potential candidates for future EU membership. It is hoped that this clear signal might have the stimulating effect on the policy process in south-east Europe that it has had in the other candidate countries.

There were two main patterns of economic growth among the transition economies in 2000: while output in central Europe and the Baltic States was mainly driven by exports of manufactured goods (with a growing share of technology-intensive products), growth in the CIS economies was mainly supported by increased commodity exports, with the highest growth rates in those countries with oil and natural gas resources

Industrial output and GDP continued to grow strongly in 2000 in the Russian Federation, although there was a marked slowdown in the fourth quarter. By the end of 2000, Russia's GDP had regained its level of 1994, but it was still considerably below its 1989 level. The oil and natural gas sectors played a key role in 2000, generating considerably more income as the dollar price of oil increased by 30% from January to September 2000

2.1.5 *Short-term outlook*

The short-term outlook for the world economy is surrounded by a considerable margin of uncertainty. Much will depend on whether or not the United States economy moves into recession ("hard or soft landing") and how rapidly the forces of domestic growth will strengthen again. Given the large share of the United States economy in world demand and output, any sharp and extended cyclical downturn is bound to have, directly or indirectly, considerable adverse effects on the rest of the world.

At the end of the first quarter of 2001, the short-term economic outlook for the western European market economies looks much less favourable than in the autumn of 2000. The main factor behind this is the unexpectedly sharp slowdown in economic growth in the United States since the second half of 2000 and the stalled recovery in Japan. Activity in the two largest economies in the world is thus weakening rapidly or continuing to stagnate. This has started to feed through changes in net exports to other regions of the world economy. As a result, there has been a progressive lowering of growth forecasts, especially for the United States, since late 2000.

In the United States, real GDP is now expected to increase by only some 1¼% in 2001, a very abrupt deceleration from an average growth rate of 5% in 2000. In Japan, economic growth is expected to exceed only slightly 1% in 2001, and even that is uncertain given

disagreements over economic policy and delays in introducing another economic emergency programme.

Growth forces are seen to hold up somewhat better in western Europe. In the euro area, real GDP is currently forecast to increase by some 2.5% in 2001, down from 3.4% in 2000 and half a percentage point less than was being forecast last autumn. Broadly similar changes are expected for the European Union and for western Europe as a whole. For the world industrialized economies in aggregate, the average rate of economic growth is likely to be only some 2% in 2001, down from 3.8% in 2000 and the smallest annual increase since 1993. As a result, the prospects for economic growth in the central and eastern European economies, as well as the CIS and other parts of the world economy, will also be adversely affected, leading to a mutually reinforcing process which will amplify the direct trade effects of the cyclical downturn in the United States. The result is that world output might now grow by only some 2.5 to 3% in 2001, down from 4.7% in 2000 and considerably less than was expected in the autumn of 2000.

Thus, should the favourable external trends of 2000 be reversed, the transition economies might be subject to a negative external shock which could mirror that in 2000. Indeed, in the closing months of 2000 and the opening months of 2001 there has been a widespread weakening of output in virtually all the transition economies, which is already more pronounced than the current slowdown in western Europe. A further deterioration in the latter is therefore likely to have a considerably amplified effect on economic activity in the transition economies. Should developments in North America and western Europe take such a turn, the currently envisaged rates of economic growth for 2001 may turn out to be very optimistic.

The unprecedented growth of Russia's GDP in 2000 reflected the combination of a low base (which was due to the 1998 economic crisis) and an extremely favourable external environment which is unlikely to be sustained. Indeed, all the indications are that the Russian economy (in particular industrial output) was also slowing down at the beginning of 2001. If oil prices continue to fall, domestic demand in Russia will be negatively affected and the official forecast for the year as a whole (GDP growth of 4%) will be difficult to achieve. The prospects for most of the other CIS economies are conditional both on the outlook for world oil and commodity prices and on the performance of the Russian economy, including the development of rouble exchange rate. Hence, the uncertainties concerning the outlook for Russia are largely translated into uncertainties for the Commonwealth as a whole.

2.2 Construction-sector developments

This section presents short-term trends in construction in Europe and North America. In contrast to previous years, the analysis of the Japanese housing developments is not included here, because it is covered in chapter 4 on "Influences on Japanese demand for wood products." The section focuses on new residential construction, plus the repair and remodelling market, because these sectors use the most wood.

2.2.1 *North American residential construction*[4]

The United States housing boom that began following the recession in the early 1990s, continued in 2000, and despite some pullback in 2001, the residential housing market remains healthy (graph 2.2.1). Single-family starts are the key to wood products demand because single-family units consume over twice as much lumber and panels as multifamily units. Single-family housing construction activity has remained very strong and well above 1 million units annually since 1995 as it now makes up over 80% of conventional housing demand ("conventional" excludes mobile homes and United States Department of Housing and Urban

GRAPH 2.2.1

North American residential construction, 1995-2001

Sources: National Association of Realtors and United States Bureau of Census, 2001.

[4] For this sub-section, the secretariat is indebted to Dr. Al Schuler, Research Economist, Northeast Forest Experiment Station, USDA Forest Service, 241 Mercer Springs Road, Princeton, West Virginia, United States 24740, telephone +1 304 431 2727, fax +1 304 431 2772, e-mail: aschuler@fs.fed.us and Mr. Craig Adair, Director, Market Research, APA-The Engineered Wood Association, P.O. Box 11700, Tacoma, Washington, United States 98411-0700, telephone +1 253 565 7265, fax +1 253 565 6600, e-mail: craig.adair@apawood.org

Development (HUD) Code homes). Furthermore, today's houses are larger (20% larger than the 1980s) and they have more amenities (multiple garages, extra bathrooms, more bedrooms, etc.). In addition, the resale market has been setting records for the past three years with sales of existing homes ("resales") averaging in excess of 5 million units per year. This is important because residential remodelling and repair markets consume almost as much lumber and panel products as new housing activity, and the resale market is the best single indicator of what is going on in the remodelling market. Furthermore, this market gives good insight into furniture and kitchen cabinet sales, which are other important users of wood products.

Housing activity is important to the United States economy and it is critically important to the wood products industry. This is because 90% of the United States homes are wood-frame compared with 10% in Europe and about 50% in Japan. Housing activity (new housing plus remodeling) accounts directly for more than 5% of GDP. When indirect impacts are included residential construction contributes over 10% to GDP. According to the National Association of Homebuilders the construction of 1,000 single-family homes generates 2,500 full-time construction jobs, $80 million in wages and $43 million in combined federal, state and local revenues and fees.

It is remarkable that in early 2001, housing has managed to avoid the sharp pullback being experienced by the rest of the United States economy. Some analysts believe that the United States would be in a recession in mid-2001 if not for the resilience in housing. For example, United States GDP in 2001 is expected to advance less than half the 5% growth in 2000. Some analysts feel weakness in the United States economy is due to a sharp pullback in business investment spending and the obvious recession in the manufacturing sector. Yet, housing, through May 2001 at least, has been relatively immune to the macroeconomic slowdown. The main reason is that consumer confidence has remained relatively strong thanks to a still healthy employment picture and continued income growth. And, aggressive rate reductions by the Federal Reserve Board have resulted in attractive interest and mortgage rates, by which housing has been a direct beneficiary. The key to the United States economy and the housing market is consumer confidence. But will the Federal Reserve Board rate reductions keep the consumer spending and buying homes, or will lower corporate profits, weaker equity markets, rising unemployment, and slower income growth pull the United States into a recession this year? The consensus forecast is continued strong housing in 2001 and 2002 with only a slight decrease from 2000's 1.6 million houses (table 2.2.1).

TABLE 2.2.1
United States housing outlook, 2001 and 2002

	2001	*2002*
APA	1.54	1.56
NAHB*	1.56	1.58
RISI*	1.54	1.52
NABE*	1.58	1.55
NAR*	1.59	1.56
Average	**1.56**	**1.55**

Sources: APA (APA-The Engineered Wood Association forecast in March, 2001; NAHB – National Association of Homebuilders forecast in May, 2001; RISI – Resource Information Systems forecast in April, 2001; NABE – National Association of Business Economists forecast in May, 2001; and NAR – National Association of Realtors forecast in June, 2001.

The Canadian housing market has improved steadily since 1998 pretty much in tandem with the improving economy. This is not surprising because Canada, as a NAFTA partner with the United States, is heavily tied to the United States economy. In fact exports to the United States account for almost one third of Canada's GDP, and when their southern neighbour has a strong economy, Canada benefits. Of course, the corollary also holds – Canada cannot avoid a weakening United States economy.

Canadian housing starts have improved steadily over the past several years, growing from 137,000 in 1998 to 152,000 in 2000, an 11% increase. Although Canada's housing market is slowing down somewhat in 2001 (as is the economy as a whole), the pullback is expected to be minor if any at all. Canada's economy isn't expected to cool as much as its southern neighbour (because it didn't grow as fast in the past four years and current strong energy demand is benefiting Canada), hence the expectation that housing should remain near last year's total. For 2002, most analysts feel that Canadian starts should approach 160,000 units (as long as the United States avoids a recession).

2.2.2 *European construction developments*[5]

2.2.2.1 *Total construction*

According to Euroconstruct, the consortium of research institutions specializing in the construction sector in Europe, the value of construction in their

[5] Information for this section came from Euroconstruct, either directly from their website at www.euroconstruct.com or via the European Panel Federation's *Annual Report 2000-2001*, 2001.

European country grouping[6] is forecast to exceed 850 billion euros in 2001 or 2002. The European Panel Federation (EPF) *Annual Report 2000-2001* states that the overall construction sector output in 2000 was 875 billion euros, up 2.8% from 1999. Euroconstruct forecast increased construction in all of their countries in 2001, with the exception of Germany and Norway. "While Germany remains the single biggest market accounting for around 20% of the total, it is also expected to remain subdued throughout the forecasting period." (Euroconstruct). German construction contracted by 2.5% in 2000 (EPF). The largest contributions to total volume growth are forecast to come from France, Spain, Italy and the United Kingdom.

However, in terms of relative growth Euroconstruct's four central and eastern European countries (CEECs), Czech Republic, Hungary, Poland and Slovakia, are expected to outpace their western European members. The EPF forecast was for equal growth in CEECs and western Europe, at 2.9 and 2.8% respectively.

In 2001 Euroconstruct forecasts a sharp slowdown in total construction in western Europe, with only 1.5% growth. And they forecast the same growth in 2002 with the possibility of slightly higher growth in 2003 at 2%. In contrast, total construction output for their four CEECs is forecast to expand by almost 20% over the three years to 2003 set against a modest 5% expansion for total western Europe. Euroconstruct's 15 western European countries are more mixed. Norway and Germany are the only countries with expected lower construction by 2003. The variation between the other countries is extreme, from 2.5% growth for Denmark to over 12% for Sweden through 2003, partly due to disparities between business cycles. For reference, the Czech Republic is forecast to grow by over 15%.

There are structural differences between the construction sectors in western Europe and Euroconstruct's four CEECs (tables 2.2.2 and 2.2.3). Renovation and modernisation account for more than a third of western European construction output, while CEEC construction activity is overwhelmingly dominated by new non-residential construction and civil engineering.

TABLE 2.2.2

Total construction output in western Europe by type, 1999-2003

(Annual growth rate in %, at 2000 constant prices)

Western Europe	*1999*	*2000*	*2001*	*2002*	*2003*
New residential	3.0	2.2	-0.3	-0.5	-0.1
Residential repair and remodelling	2.5	3.0	1.8	2.7	2.6
Non-residential	5.7	2.6	2.5	1.4	2.0
Non-residential repair and remodelling	2.3	4.0	1.9	2.3	1.8
Civil engineering	3.6	2.7	2.8	3.2	3.3
Total construction	**3.6**	**2.9**	**1.3**	**1.8**	**1.9**

Note: 2001-2003 are forecasts.

Source: Euroconstruct, 2001.

TABLE 2.2.3

Total construction output in central and eastern Europe by type, 1999-2003

(Annual growth rate in %, at 2000 constant prices)

CEECs	*1999*	*2000*	*2001*	*2002*	*2003*
New residential	5.7	7.9	10.2	12.5	9.0
Residential repair and remodelling	3.8	3.4	4.9	3.9	6.5
Non-residential	1.2	1.8	2.3	3.9	6.6
Non-residential repair and remodelling	-0.3	1.2	4.8	1.6	5.4
Civil engineering	-3.0	2.3	5.9	8.9	10.1
Total construction	**-0.6**	**3.2**	**5.0**	**6.0**	**7.2**

Note: 2001-2003 are forecasts.

Source. Euroconstruct, 2001.

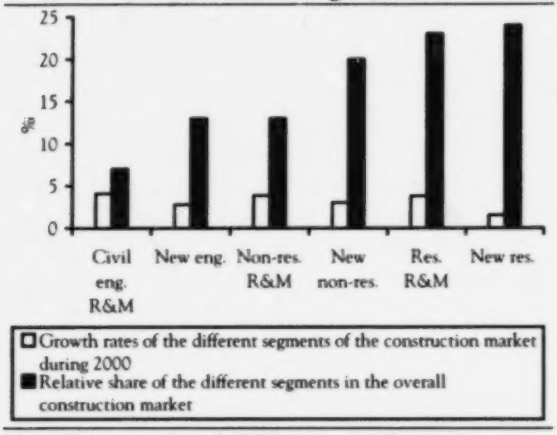
[6] Euroconstruct's 19 countries: Austria, Belgium, Denmark, Czech Republic, Finland, France, Germany, Hungary, Ireland, Italy, Netherlands, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland, United Kingdom.

2.2.2.2 *Residential construction*

Of greater interest to the wood products sector is the development of residential construction because of the greater use of wood. Residential construction, including new construction plus repair and remodeling, in Europe totaled over 400 billion euros, or 46% of total construction, in 2000 (graph 2.2.2).

GRAPH 2.2.2

Construction market segments in the Euroconstruct region, 2000



Note: "Res." is residential, "R&M" is remodelling and maintenance and "eng." is engineering.
Source: European Panel Federation *Annual Report 2000-2001*, 2001.

Euroconstruct, as reported by EPF, forecasts a drop in new housing starts in France, Germany and Norway in 2001 (table 2.2.4).

According to EPF, in 2000 Germany had a 30% share of the residential construction market in western Europe, followed by France, 14%, Italy, 13%, United Kingdom, 10%, and Spain, 8%; these 5 countries accounted for 75% of the market. They forecast that from 2001 to 2003, Belgium, Finland, Ireland, Spain, Sweden, Switzerland and the United Kingdom will have above average growth, while Austria, Denmark, France, Germany, the Netherlands and Portugal will have lower than average growth. Western European dwelling construction shows a declining trend over the 1999 to 2003 period in contrast to growing residential construction in Euroconstruct's 4 CEEC members (table 2.2.5).

Based on the four CEEC members of Euroconstruct, they forecast that residential construction, and especially renovation and maintenance, will become one of the main driving forces for construction. Repair and remodeling is forecast to overtake new construction expenditures by 2003 in other countries too, for example in Finland. Already in Italy the repair and remodelling expenditures are twice those of new residential construction. In Norway the maintenance and renovation expenditures exceed new residential construction.

TABLE 2.2.4

Residential construction forecasts for western Europe, 1999-2003

	Total value (billion euro) 1999	*Percent variation in real terms on previous year*				
		1999	*2000*	*2001*	*2002*	*2003*
Austria	12.8	-3.8	-0.1	-0.1	0.5	0.4
Belgium	12.8	0.9	3.3	2.5	2.8	2.9
Denmark	5.9	0.0	9.4	-9.5	4.5	4.5
Finland	5.6	7.0	5.0	4.0	2.0	0.0
France	53.2	7.5	5.5	-2.7	1.4	1.8
Germany	126.0	-0.2	-3.7	-1.2	0.2	1.0
Ireland	7.6	9.1	9.4	5.1	5.2	3.6
Italy	51.2	5.7	6.0	3.2	1.2	0.0
Netherlands	17.3	1.4	3.6	3.3	-0.7	-1.0
Norway	5.6	5.7	7.4	5.9	3.4	6.6
Portugal	10.1	10.8	7.7	2.2	6.5	-8.5
Spain	30.0	10.5	8.4	2.8	1.8	1.9
Sweden	5.8	9.0	4.8	11.1	7.9	4.8
Switzerland	9.9	-2.5	2.3	2.0	2.3	2.0
United Kingdom	37.8	-4.2	3.5	4.1	3.2	2.0
Total western Europe	**391.6**	**2.6**	**2.4**	**0.7**	**1.2**	**1.1**

Note: 1999 is estimated and 2000 to 2003 are forecasts.
Source: Euroconstruct, 2001.

TABLE 2.2.5

Dwelling construction in Euroconstruct member countries, 1999-2003

(1,000 dwellings)

	1999	2000	2001	2002	2003
Austria	24	21	19	17	16
Belgium	28	30	33	33	34
Denmark	11	10	9	10	11
Finland	10	12	12	13	13
France	188	197	190	190	190
Germany	237	225	210	200	210
Ireland	37	41	43	46	48
Italy	46	44	48	50	52
Netherlands	58	55	58	58	58
Norway	20	22	22	22	23
Portugal	37	38	40	36	30
Spain	160	155	130	110	100
Sweden	5	7	9	11	12
Switzerland	14	15	14	14	14
United Kingdom	143	138	140	139	140
Western Europe	**1,018**	**1,010**	**977**	**949**	**951**
Czech Republic	12	14	14	15	14
Hungary	15	18	20	20	23
Poland	39	42	46	50	52
Slovakia	8	9	10	10	10
Central Europe	**74**	**83**	**90**	**95**	**99**

Source: Euroconstruct, 2001.

In Denmark, and presumably in France, Germany and Switzerland to some extent, the exceptionally high construction expenditures in 2000, especially repair and remodeling, are linked to the December 1999 windstorms. Overall damage to buildings in Denmark was estimated by Euroconstruct at 1% of GDP. As the repairs were done in 2000, there is negative growth in the construction sector forecast for 2001.

In conclusion, residential construction is expected to fare well in the Czech Republic, Hungary, Poland and Slovakia, which could indicate a general trend in other CEECs; however, statistics were not available to document this assumption. Western European countries have vastly different outlooks for residential construction in the short term. The repair and remodeling segment should be a factor that buoys up stagnant construction in many European countries.

Chapter 3
Romania's forest products markets[1]

Highlights

- Romania's forest products industry is recovering from a serious downturn following political and economic changes in 1989 and is poised to make considerable improvements in production and trade.
- Roundwood removals have risen slightly in the past few years, and for many important species, removals are half of their unsustainable levels in the 1980s.
- Sawnwood production increased strongly in 2000, by roughly 20% over the levels in 1999, and now production approaches levels in 1988 (before transition to the market economy started), but remains 27% below the peak in 1985.
- Production of many other wood products increased in 2000 although only sawnwood and furniture have exceeded 1990 levels.
- Owing to low, but growing domestic demand, development of the Romanian wood industry is contingent on increasing exports.
- After climbing by 75% in value since 1990, wood products exports are almost 10% of all of the country's exports combined.
- The wood-based panels industry has had recent capacity increases, partly through foreign investment, and although MDF exports have been initiated, higher particle board imports result in a negative trade balance for the panels sector.
- Romania's rich forest resources, predominantly hardwoods, supply the country's current needs as well as for roundwood exports which have increased sharply since their liberalization in 1998.
- Exports of sawnwood, combined with higher production of wood products, were the causes of unsustainable harvest levels before 1990.
- Initiation of certification of sustainable forest management is planned for 2001; however, there are no certified forest products sold in Romania at present.

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Secretariat introduction

The secretariat would like to thank Mrs. Constanta Istratescu, Scientific Secretary, National Institute of Wood, Bucharest, for coordinating and producing this chapter with its valuable insight into the forest and forest industry sector in Romania. The much appreciated contributions of the co-authors, Mrs. Aurica Sereny, Deputy General Director, Ministry of Industry and Resources and Mr. Gheorghe Parnuta, Scientific Secretary, Forest Research and Management Institute, enabled additional enlightening information to be incorporated into the chapter. We take this opportunity to thank all the other people in Romania who provided information and statistics, drafted the graphics and translated the first draft.

With the information in the chapter, the balance between the forests in Romania and the forest industries becomes clear, as well as the tremendous influence of the political and economic changes on the sector. Evidently the Romanian forest and forest industry sector is making important gains in 2000 and 2001.

This chapter is part of a series of special chapters focussing on one of the UNECE region country's forest products markets. A listing of past chapters may be found in the annex.

3.1 General economic development

Since 1989, Romania has seen major political changes. The end of the Council for Mutual Economic Assistance (CMEA) system led to a severe drop in Romanian exports. The privatization process started slowly due to the lack of proper legislation. The decrease in industrial production led to increased unemployment and reduced investments. In agriculture the changes in ownership structure from large collective farms, poor endowment and poor financial standing of the new land owners, hindered obtaining of results envisaged.

Since the beginning of the transition period the gross domestic product has been below the level of 1990 (table 3.1.1). However, for the first time, in 2000, GDP recorded a real growth, of 1.6% compared with 1999. This was a result of the boosting of activities and consequently the increase of gross added value in the manufacturing industry (6.1%), in the building construction sector (6.3%) and in services (3.1%). The same trend has been also recorded thus far in 2001. For the first quarter of 2001, the industrial production increased by 13% in absolute volume compared to the same period in 2000, due mainly to increases in the processing industry (17.1%).

The around 10% unemployment rate during the last 10 years, together with skyrocketing prices, has reduced domestic demand for industrial goods, thus reorienting the industry towards exports (table 3.1.2). This is true also for wood industry products, demand for which is influenced by demographic factors, consumer spending and construction.

The population of Romania was estimated at 22.4 million in January 2001, representing a gradual decrease by 0.77 million from 1990; 51.1% of the population is female, 55% lives in urban areas and 45% in rural areas and 8.8 million persons are employed. In 1998 the average consumer spent 57.2% of his expenditure on food, 14.6% on services and 28.2% on non-food products. Building construction has been decreasing from 1996 to 2000 (graph 3.1.1). However, housing construction prospects are bright for the next years. At the end of 2000 there were about 65,336 dwelling units in various stages of construction compared to 22,445 at the end of 1999.

The prohibition of imports before 1990 and the lack of diversification of value-added products have led to a massive increase in imports. During 2000 the monthly average exports of $836.9 million represented the highest recorded level since 1989.

TABLE 3.1.1

Romania's economic indicators, 1993-1999

(1990 = 100)

	1993	1994	1995	1996	1997	1998	1999
Consumption (Total)	84.3	87.5	97.0	103.7	99.3	95.3	..
Household consumption	78.2	80.2	90.7	98.0	94.4	90.0	..
Share of private sector in the GDP (%)	34.8	38.9	45.3	54.9	60.6	61.0	61.5
Gross domestic product	**80.6**	**83.8**	**89.8**	**93.4**	**87.7**	**83.0**	**80.3**

Note: Data on year-by-year basis.

Sources: *Romanian Statistical Yearbook*, 1999 and *Statistical Bulletins*, 1/2000 and 1/2001.

TABLE 3.1.2

Consumer price indices in Romania, 1993-2000

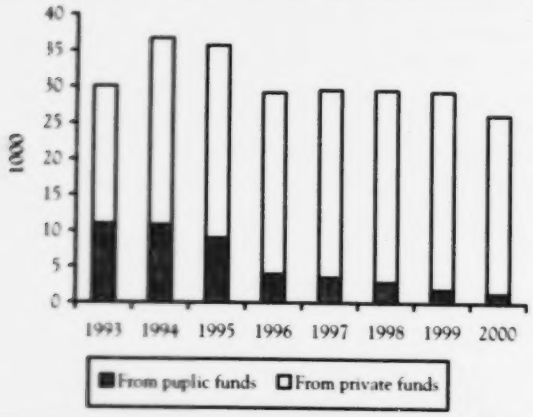
(Previous year = 100)

	1993	1994	1995	1996	1997	1998	1999	2000
Food goods	348.9	236.2	131.9	136.4	251.4	148.4	127.9	143.7
Non- food goods	369.0	232.8	129.6	139.1	252.5	160.2	152.3	144.0
Services	340.3	250.8	142.7	146.9	276.5	192.1	184.0	153.9
TOTAL	**356.1**	**236.7**	**132.3**	**138.8**	**254.8**	**159.9**	**145.8**	**145.7**

Sources: *Romanian Statistical Yearbook*, 1999, and *Statistical Bulletins*, 1/2000 and 1/2001.

GRAPH 3.1.1

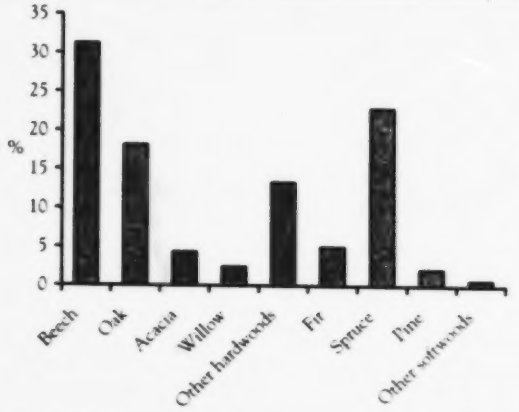
Finished dwellings in Romania, 1993-2000



Sources: *Romanian Statistical Yearbook*, 1999 and *Statistical Bulletins* 1/2000, 1/2001.

GRAPH 3.2.1

Species composition of Romanian forests, 1999



Source: *Statistic Yearbook of Romania*, 1999.

The same situation can be seen for imports with an increase by 25.6% from 1999 and a monthly average of $1.1 billion in 2000 which resulted in on increase in the foreign trade deficit of $2.7 billion compared with $1.9 billion in 1999.

3.2 Forest resources

In Romania, forest and forest lands total 6.4 million hectares representing 26.7% of the total area of the country. Out of this, 6.2 million hectares is forest cover. Forests are categorized by their functions: 53.6% are "special protection forests"; and 46.4% are "production and protection forests".

Hardwood species occupy 69.3% of forest area and softwood 30.7%. The main hardwood species are beech and oak, and the main softwood species is spruce (graph 3.2.1). The percentage of oak species in forests is below optimum. Within the softwood species, the share of fir has been reduced over the last decades and spruce now represents 74.6% of the total softwood area.

The current uneven structure of age classes results in a shortage of removable stands (more than 100 years) and a deficit in pre-harvest stands of the 81 to 100 year class. The over-harvesting before 1990, i.e. over the allowable cut, resulted in this situation (graph 3.2.2). The actual share of exploitable forests is even more reduced because part of the stands exceeding 80 years are in areas with special protection functions or in areas with difficult access due to the lack of forest road networks. The present shortage in pre-harvest and mature tree stands will change the volumes and assortments of harvests. Readjusting the forests age structure will take a long time.

In the last decade the annual forest area regenerated has been around 20,000 ha, with natural regeneration representing about 50% of the total. Forest cover can be divided into plantations and natural regeneration (table 3.2.1).

The volume of afforestation achieved is not sufficient and the National Forest Administration recommended a dynamic new strategy aimed at increasing the share of natural regeneration to 55% by the beginning of 2002. It

also aims at improving afforestation structure by promoting local eco-types able to form the best diversified, sustainable and multiple-function forests.

GRAPH 3.2.2

Structure of forests by age class in Romania, 1999

Source: *Sustainable Forest Management in Romania*, National Forest Administration, 2000.

The national growing stock, according to the last inventory in 1985, is 1,341 billion m^3, an average of 215 m^3/ha. The annual growth is estimated at 5.4 m^3/year/ha (in case of softwoods 7.4 m^3/year/ha; beech 5.4 m^3/year/ha and oak 3.5 m^3/year/ha).

The maximum annual volume of removals is determined by the Government. In the last decade it was regularly below the allowable cut mainly due to low accessibility in the stands (table 3.2.2).

In 2000, of the 14.2 million m^3 commercial harvest, 12.9 million m^3 came from state forests under the management of the National Forest Administration and 1.3 million m^3 came from private and other forests. The volume from individual owners' and private forests amounted to 800,000 m^3. This volume reflects the present structure of ownership (table 3.2.3) resulting from the implementation of Forest Law 18/1991 which stipulates the restitution of ownership rights only for private owners, to a maximum of one hectare area per person deprived of their forest land in 1947. Current legislation will enable private forest owners to have 10 hectares each. This would accelerate privatization from the current 350,000 hectares to 2 million hectares in 2002.

TABLE 3.2.1

Afforestation in Romania, 1993-2000

(Hectares)

	1993	1994	1995	1996	1997	1998	1999	2000
Plantations	**10,281**	**14,507**	**12,943**	**12,559**	**10,479**	**10,542**	**11,446**	**12,381**
Coniferous trees	4,962	4,553	4,855	4,184	3,736	4,112	4,719	5,616
Broadleaved trees	5,319	9,954	8,088	8,375	6,743	6,430	6,227	6,765
Natural seeding	**65**	**237**	**174**	**168**	**162**	**65**	**42**	**56**
Coniferous trees	16	49	40	12	54	15	7	11
Broadleaved trees	49	188	134	156	108	50	35	45
TOTAL	**10,346**	**14,744**	**13,117**	**12,727**	**10,641**	**10,607**	**11,488**	**12,437**

Sources: *Romanian Statistical Yearbook*, 1999 and *Statistic Report*, Silv. 4, 1999 and 2000.

TABLE 3.2.2

Removals in Romanian forests, 1985-2000

(1,000 m^3, gross volume)

	1985	1990	1995	1996	1997	1998	1999	2000
Coniferous	7,560	5,813	4,973	5,751	5,836	5,195	5,565	5,346
Beech	9,527	4,958	4,215	4,266	4,263	3,635	4,115	4,509
Oak	2,997	2,045	1,551	1,658	1,489	1,276	1,356	1,330
"Strong" hardwoods	2,958	2,071	1,774	1,876	1,757	1,491	1,585	1,729
"Soft" hardwoods	2,271	1,762	1,300	1,252	1,164	1,045	1,072	1,319
TOTAL	**25,313**	**16,649**	**13,813**	**14,803**	**14,509**	**12,642**	**13,693**	**14,233**

Sources: *Romanian Statistical Yearbook*, 1994 and 1999 *and Statistic Report*, Silv. 3, 1999 and 2000.

TABLE 3.2.3

Forest ownership area of Romanian forests, 1998
(1,000 hectares)

Public forests owned by the State	6,028.0
of which:	
- under management by National Forest Administration	6,003.0
Private forests	339.0
TOTAL	6,367.0

Source: *Statistic Report, Silv. 1*, 1998.

For 2001 the maximum allowable cut is 17.0 million m^3 of which 15.3 million m^3 is from forests owned by the State and managed by the National Forest Administration.

3.3 Institutional framework – forest policy

In Romania, the forestry sector and wood industry are separated. Beginning in 2001, the Ministry of Agriculture, Food and Forests draws up the policies for all forests, irrespective of their ownership. They directly control forest management. The same Ministry has full authority over the National Forest Administration. In accordance with the Government Regulation 173/2001 RNP, the 36 forests districts provide for unit management. As specified by forest management practices in the State forests and based on contractual arrangements, it can also manage private and communal forests. The forestry system implementation is under the control of 16 forestry and wildlife protection inspectorates under the same Ministry.

The most important legislative acts for the sustainable forest management are the Forest Bill (law 26 / 1996) and:

- The bill regulating the forestry system and the forests management (1998);
- The bill of land register and estate advertising (1998);
- The bill of land fund (18/1991);
- The bill of environment protection (137/1995);
- The bill of hunting fund and wildlife protection (103/1996);
- The bill on Danube Biosphere Reserve (Law 82/1993).

In forestry, Romania actively cooperates with international organizations and ensures the application according to the specific conditions of the country on sustainable forest management as established at UNCED in Rio (1992) and at the Ministerial Conference for Protection of Forests in Europe (Strasbourg 1990, Helsinki 1993 and Lisbon 1998).

The Ministry of Industry and Resources is the body responsible for implementing government policy in the field of industrial production and goods. The wood industry is under the coordination of the State Secretary for Industrial Development and of the General Direction for consumer goods, who establishes industrial strategy and policies for regional development, economic and industrial cooperation, attracting foreign investors, integrating into the EU and harmonizing legislation, accreditation of quality and international markets access.

The structural and economic transformations taking place in Romania and the need to speed up the restructuring and privatization process, together with the development of small and medium-sized enterprises (SMEs), resulted in setting up in 2001 a Ministry for SME Development and Cooperation. The newly established State Agency for Privatization and Capital Investment plays an active role in the privatization of state companies. The social and economic development programme is under the control of the Ministry of Projections and Development, which is responsible for the activity of the National Institute for Statistics and Economic Surveys.

The State and private producers have established professional associations, for example: the Association of Romanian Foresters, the Association of Romanian Furniture Producers, the Technical Association of Romanian Pulp and Paper Industries and the Association of Romanian Wood Panels Industries.

Research and development activities relating to entrepreneurship and the market economy are carried out by some central organizations such as: the Institute for Forest Research and Management, the National Institute of Wood and the Research and the Design Institute for Pulp and Paper.

3.4 The effects of the transition process

During the period of adoption of market economy principles in Romania, which started in 1990, the wood sector was owned wholly by the State. It was characterized by a small number of large companies, some of them having a complex structure including total integration. During the transition process, large companies were restructured to make them more attractive for privatization. During the last decade, 6,776 small and medium-sized private companies were established mainly for the production of sawnwood, building materials and furniture. As a result the configuration of this sector is quite different now than it was in 1990 (table 3.4.1).

The privatization process of the wood sector is nearly completed. From a total of 7,038 companies, 7,018 are privatized and another 20 State companies are in the process of privatization. The private companies account for some 96% of the production of the whole sector. From this point of view the wood industry as a whole is situated much above average of other industrial sectors. For all industrial sectors combined, the share of private companies in 1999 was only 31.7%. The dispersed, small companies, using obsolete equipment, do not profitably manufacture sawnwood, joinery and furniture. Their products are manufactured with high consumption of raw materials and with reduced conversion efficiency. This negative effect of low processing efficiency is evident especially in the furniture industry.

At the end of 2000, in the woodworking industry there were 67,000 employees, 20,800 in the pulp and paper industry and 104,000 in the furniture industry. The gross average salaries recorded in December 2000 reflect the level of modernizing and managerial orientation in various sectors. Compared with the average gross monthly wage in all manufacturing, $148, the woodworking industry average was only $85, in the furniture industry, $103 and in the pulp industry, $188.

Investments in the woodworking industry during 1990 to 1999 totalled about $815 million (Ministry of Industry and Resources) which allowed manufacturing new products (MDF, solid-wood panels, laminated wood parquet). The 20 largest companies had the highest turnover (table 3.4.2).

In the next years the sector will be influenced by the start up of some large capacity companies by foreign investors. A 285,000 m^3/year MDF plant started in 2000. A particle board plant with a capacity of 240,000 m^3/year is due to start in 2001. A laminated board plant of 5 million m^2/year is also due to start in 2001. The FRATI company of Italy is investing in the company MDF Sebeş A new plywood plant with a capacity of 12,000 m^3/year started in 2001. A veneer plant with a capacity of 12,000 m^3/year is scheduled for 2003 by an investment of Blomberger Holzindustrie in the company SC CILDRO – Drobeta Turnu Severin.

Packaging paper capacity of 150,000 tons/year started in 2000 by an investment of Rosman of France in the company SC AMBRO Suceava.

TABLE 3.4.1

Structure of companies in the Romanian wood industry, 1990-2000

(Number of companies)

Branch	*1990*	*2000*			
		Total	*of which:*		
			Large	*Medium*	*Small*
Wood industry	107	4,012	60	139	3,813
Furniture and other finished wood products	114	2,679	114	110	2,455
Pulp and paper	23	347	29	23	295
TOTAL	244	7,038	203	272	6,563

Source: Ministry of Industry and Resources, 2001.

TABLE 3.4.2

Concentration of companies within the wood industry in Romania, 1998

Activity	*Number of companies*	*Average number of employees*	*% of the total turnover*		*% of total employees*	
			First 5	*First 20*	*First 5*	*First 20*
Woodworking industry (without furniture production)	4,331	91,874	9.3	22.6	13.3	35.2
Pulp, paper and paperboard	387	21,471	35.7	61.0	41.5	75.9
Furniture and other activities	2,828	124,428	10.7	28.8	11.4	31.0

Source: *Statistical Yearbook of Romania*, 1999.

3.5 Forest products industry – production and consumption

The changes during the 1990s have left the wood industry with processing capacities requiring annual harvests of 18 to 20 million m^3. However, removals are only 14 to 15 million m^3/year as decided by the National Forest Administration in accordance with real possibilities for natural growth and regeneration of forest cover. This deficit began a raw materials crisis. The situation was worsened by changes in the market of wood products and limitations imposed during 1990-1997 for the export of sawnwood and logs, liberalization of wood prices, legislation of public auctions and negotiations and last but not least the privatization process.

After the first transition stage (1990 to 1994), when production fell throughout the wood industry, production of most wood products improved to meet new market demand (table 3.5.1). Modernizing of companies after 1994 enabled the furniture industry to increase production in 2000 by 33% compared with 1990.

Obsolete technology hindered some companies from emerging from the deep crisis. For example, production in 2000 was below the level of 1990 for wood-based panels and pulp and paper (graph 3.5.1).

A favourable situation for the wood industry was created by liberalization of exports in 1998. While the limitation of removals, in 2000 the production of sawnwood increased in 2000 by 19% over 1990 (graph 3.5.2).

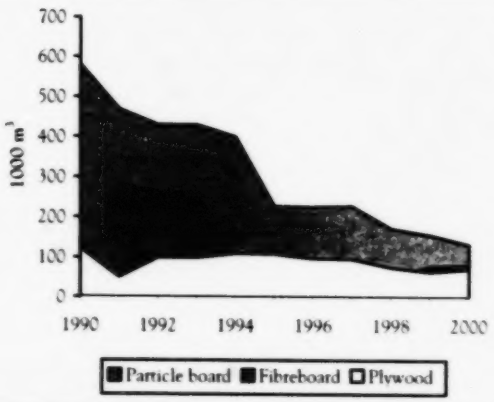
The changes in the production volume of various wood products are reflected in changes in the structure of the sector (table 3.5.2).

Although the economic conditions of the transition period do not permit us to know the real domestic demand, there is no relation between the industry structure and the domestic market demand. Production is predominantly influenced by foreign market demand. Domestic consumption remains low, even in the case of sawnwood, which registered significant increases for increased furniture production, solid-wood panels and building joinery (graph 3.5.3).

Modernization and the development of new production capacities, which is now in progress, shall close in part the technical gap. The interest of foreign investors in the development of production of wood-based boards and pulp and paper assures positive changes in the sector in the next two to four years. The importance of the forest products sector in the share of all Romanian industries will have a positive impact on domestic consumption and the import/export balance.

GRAPH 3.5.1

Wood-based panels production in Romania, 1990-2000



Sources: *Statistic Yearbook of Romania*, 1994, 1999 and *Statistical Bulletins* 1/2000, 1/2001.

TABLE 3.5.1

Wood products production in Romania, 1990-2000

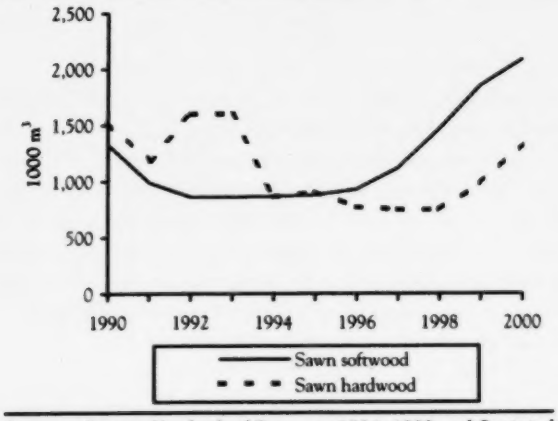
Products	*1990*	*1994*	*1998*	*1999*	*2000*	*% Change 1990 to 2000*	*% Change 1999 to2000*
Sawnwood[1], 1,000 m^3	2,853	1,727	2,200	2,818	3,396	+ 19.0	+ 20.5
Particle board, 1,000 m^3	581	240	173	157	133	- 77.1	- 15.3
Fibreboard, 1,000 m^3	184	102	45	79	82	-55.4	+ 3.8
Plywood, 1,000 m^3	123	97	76	65	72	- 41.5	+ 10.8
Pulp , 1,000 m.t	667	221	217	201	293	- 56.1	+ 45.8
Paper, 1,000 m.t	547	288	301	289	340	- 37.8	+ 17.6
Furniture, million $	456	450	515	572	608	+ 33.3	+ 6.3

1 For reference, sawnwood production in 1985 was 4,638 (1,000 m^3) and in 1988 was 3,891 (1,000 m^3).

Sources: *Romanian Statistical Yearbook*, 1999 and *Statistical Bulletins*, 1/2000 and 1/2001.

GRAPH 3.5.2

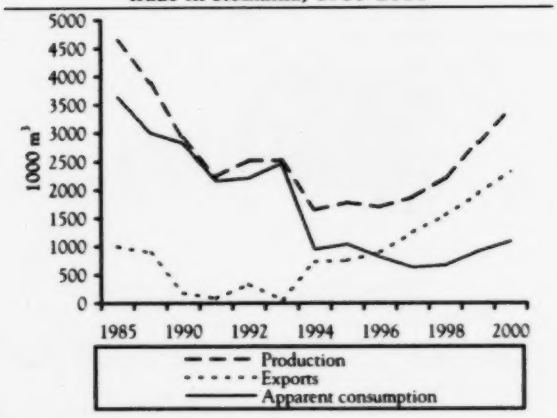
Sawnwood production in Romania, 1990-2000



Sources: *Statistic Yearbook of Romania*, 1994, 1999 and *Statistical Bulletins* 1/2000, 1/2001.

GRAPH 3.5.3

Sawnwood consumption, production and trade in Romania, 1985-2000



Sources: *Statistic Yearbook of Romania*, 1994, 1999 and *Statistical Bulletins* 1/2000, 1/2001.

TABLE 3.5.2

Changes in forest industry structure in Romania, 1989-2000

(Based on production)

	1989	2000
	%	%
Wood working industry	46	54
of which:		
wood-based panels	26	7
Pulp and paper industry	28	12
Furniture industry	26	34
Total forest products industry	**100**	**100**

Source: Ministry of Industry and Resources, 2001.

3.6 Trade of wood and wood products

The development of the Romanian wood industry is directly related to external market demand due to low domestic consumption. Increased imports of products filled the gaps in the assortments offered by Romanian producers. At the beginning of the 1990s, when the production and exports collapsed, the wood industry directed its activities towards maintaining traditional markets and also the challenging new markets. The result was that in 2000, the total value of exports of wood products was 75.4% higher than in 1990. In 2000, the value of forest product production represented 4.4% of Romania's total industrial production. The value of wood product exports, $1.0 billion in 2000, is 9.9% of the total exports of Romania.

The growth was different by type of product, almost 5 times for sawnwood, 1.5 times for wood-based panels, 1.2 times for furniture and 10 times for pulp (table 3.6.1). The liberalization of foreign trade in 1997 allowed the export of roundwood. A decrease in exports, by 9.5% from 1990 to 2000, has been recorded for paper and paperboard. In the case of wood-based panels the particle board export has been reduced in volume by 21.4% over the same period.

In 2000, Romania exported 80.7% of the sawnwood production, 50% of wood-based panels production (of which 81.4% was MDF), 33.8% of paper and paperboard production and 10.8% of pulp production. Exports of sawlogs and veneer logs represented 6.8% of softwood and 10.9% of hardwood removals. In 2000 the imports had significant influence in the apparent consumption for these products: particle board (62.3%), plywood (37.4%), fibreboard (63.6%), paper and paperboard (39.5%) (of which, printing paper represented 47.7%) and packaging paper (38.5%). The imports of furniture represented 16.8% of its apparent consumption.

The import/export balance in 2000 for the whole wood industry was positive, $635.2 million. This figure includes also secondary-processed wood and paper products. However, a negative balance was recorded for wood-based panels (-$28.9 million), paper and paperboard (-$72.0 million, of which $53.8 million for graphic paper) and secondary paper products (-$120.2 million).

In general, Romanian imports of wood products are from European countries, but exports have a broad range of distribution. In 2000 the EU countries were the main destinations for 66.7% of veneer exports, 54.6% of plywood exports, 56% of fibreboard exports (but 99% of MDF exports), 94% of particle board exports, 81.8% of furniture exports and 41.5% of pulp exports. Meanwhile EU countries imported only 16.3% of sawn softwood

TABLE 3.6.1

Exports and imports of wood products in Romania, 1990, 1999 and 2000

Products	Exports			% Change		Imports			% Change	
	1990	1999	2000	1990 to 2000	1999 to 2000	1990	1999	2000	1990 to 2000	1999 to 2000
Sawnwood[1] 1,000 m^3	430	1,917	2,322	+440	+ 21	132	5	8	- 94	+ 2
Wood-based panels (total) 1,000 m^3	105	99	153	+ 46	+ 55	-	207	226	-	+ 9
Plywood 1,000 m^3	39	41	55	+ 41	+ 34	-	8	10	-	+ 23
Particle board 1,000 m^3	27	18	21	- 21	+ 17	-	156	185	-	+ 19
Fibreboard 1,000 m^3	36	35	70	+ 94	+ 100	-	16	21	-	+31
Wood pulp 1,000 m.t	3	10	31	+ 933	+ 210	71	2	4	- 94	+ 100
Paper and paperboard[2] 1,000 m.t	127	83	115	- 10	+ 39	40	113	147	+ 268	+ 30
Furniture Million $	356	369	410	+ 15	+ 11	-	25	40	-	+ 60

1 For reference, sawnwood exports in 1985 were just over 1 million m^3 and imports were banned.

2 For reference, paper and paperboard exports in 1985 were 177,400 metric tons and imports, the only product imported until 1990, were 43,400 metric tons.

Source: *Statistic Yearbook of Romania*, 1994-1999 and *Statistical Bulletins* 1/2000, 1/2001.

exports, 23.1% of sawn hardwood exports and 2.1% of newsprint paper.

3.6.1 *Sawlogs and veneer logs*

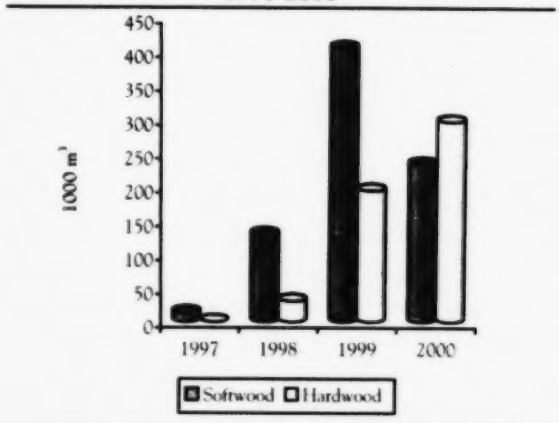
The market for sawlogs and veneer logs has grown quickly because the market for these products was only liberalized in 1997 (graph 3.6.1). Although export volumes of logs increased steeply, in the next couple of years they are envisaged to remain at the level of 2000. Most softwood logs were exported to Europe in 2000. Approximately 72% of the softwood export volume, 169,000 m^3, went to Austria and 15.6%, 36,400 m^3, went to Hungary.

For hardwood logs in 2000, Bulgaria was the main importer with 90,000 m^3, of which 77,000 m^3 of poplar logs. Turkey was second with 42.4% of beech log exports or 44,000 m^3, followed by China with 21% or 22,000 m^3. For hardwood log exports, Bulgaria ranks first with 25.9%, followed by Turkey with 17.8%, Italy with 9.8%, China with 7.4%, Austria with 6.3% and Hungary with 4.7%. Export volumes for logs are envisaged to remain constant.

The increasing development of the sawnwood industry allows greater utilization of roundwood, even at prices comparable with export markets. The prominent sawnwood producers are present at auctions of standing timber, which since 1997 are open to foreign buyers. Sawmills usually have associated companies for wood harvesting.

GRAPH 3.6.1

Export of industrial roundwood in Romania, 1997-2000



Sources: *Statistic Yearbook of Romania*, 1999 and Ministry of Industry and Resources, 2001.

3.6.2 *Sawnwood*

It is estimated that in 2000 Romania exported 2.3 million m^3 sawnwood. Fast growth of sawnwood exports by 24.2% in 1999 compared with 1998, and by 12.1% in 2000 compared with 1999, means this product takes second place after furniture in the value of export of wood products. The sawnwood exporters tackled many markets in 2000. Sawn softwood was exported to 52 countries and the sawn hardwood to 62 countries. Hungary was an important market for sawn softwoods (fir and spruce) with 15.3% of the total. North African and Near and Middle East countries took 60.5% of the total exports (table 3.6.2).

In the case of sawn hardwoods the main markets are in the same region of Near and Middle East countries (table 3.6.3). Beech was 85% of total hardwood exports, mainly to Egypt (34.1%), China (20.7%) and the Syrian Arab Republic (12.6%). China is an attractive market for both beech logs and sawnwood, taking large volumes at good prices. Poplar makes up 4% of total hardwood exports and is exported mainly to Italy (70%), France (7.6%), Germany (4.2%), Hungary (4.9%) and Israel (6.3%).

The export of large volumes of sawnwood generated serious problems for domestic furniture and joinery producers. Nevertheless, imports remained insignificant and in 2000, per capita consumption was below the European average (table 3.6.4).

TABLE 3.6.2

Exports of Romanian sawn softwoods, 2000

	Volume (1,000 m^3)	%
Hungary	256	15.3
Saudi Arabia	206	12.3
Tunisia	127	7.6
Syrian Arab Republic	111	6.6
Morocco	107	6.4
Greece	107	6.4
Lebanon	79	4.7
Other	993	40.7
TOTAL	**1,677**	**100.0**

Source: Ministry of Industry and Resources, 2001.

TABLE 3.6.3

Exports of Romanian sawn hardwoods, 2000

	Volume (1,000 m^3)	%
Egypt	187	28.9
China	112	17.3
Italy	72	11.1
Syrian Arab Republic	68	10.5
Germany	34	5.3
Other	173	26.9
TOTAL	**646**	**100.0**

Source: Ministry of Industry and Resources, 2001.

TABLE 3.6.4

Wood products apparent consumption in Romania, 1996, 1999 and 2000

(1,000 m^3)

Product (Unit)	*1996*	*1999*	*2000*	*Change (%) from 1999 to 2000*	*Unit per 1,000 inhabitants, 2000*
Sawn softwood (1,000 m^3)	369	352	401.4	+14.0	17.9
Sawn hardwood (1,000 m^3)	439	554	679.3	+22.6	30.3
Particle board (1,000 m^3)	288	295	297	+0.7	13.2
Plywood (1,000 m^3)	40	32	26.7	-16.6	1.2
Fibreboard (1,000 m^3)	69	60	33	-45.0	1.5
Chemical wood pulp (1,000 m.t.)	191	136	180	+32.3	8.0
Paper and paperboard (1,000 m.t.)	390	318	372	+17.0	16.6
Graphic papers (1,000 m.t.)	184	87	149	+71.3	6.6
Sanitary and household papers (1,000 m.t.)	35	34	38	+11.8	1.7
Packaging materials (1,000 m.t.)	159	171	174	+1.8	7.8
Other paper and paperboard (1,000 m.t.)	13	26	12	-53.8	0.5
Furniture (million $)	-	178	238	+33.7	10.6

Source: National Institute of Wood, 2001.

3.6.3 *Wood-based panels*

In 2000 the negative trade balance was 15.3% higher than in 1999. Total trade of wood-based panels, both imports and exports, increased in absolute volume. Plywood registered the most significant export volume within this category with 56% of total panel exports. Traditionally, there are three major importing countries taking 73.1% of Romanian plywood exports: Germany 29.5%, Egypt 26.2% and Italy 17.4%. Romania's main plywood supplier was the Russian Federation with 66.7% of total imports. Beginning in 2001, as a result of investments in this sector, a steady increase of exports is envisaged.

Owing to the dramatic shortage of domestic production during the 1990s, particle board was the main panel product imported. Imports have increased at a rate corresponding to the demand of the furniture industry: 106,000 m^3 in 1998, 156,000 m^3 in 1999 and 185,000 m^3 in 2000. The main particle board suppliers are the Central European Free Trade Association countries, with 74.1% of total imports (table 3.6.5). Particle board exports amounted to 21,000 m^3 in 2000 and were directed mainly to Germany (68.1%) and Italy (18.4%). Fibreboard capacity investments achieved and in progress will help balance the import/export ratio.

TABLE 3.6.5

Sources of particle board imports by Romania, 2000

	Volume 1,000 m^3	%
Czech Republic	56	30.4
Hungary	49	26.6
Slovakia	32	17.1
Italy	15	8.3
Germany	9	4.8
Other	24	12.8
TOTAL	185	100.0

Source: Ministry of Industry and Resources, 2001.

New MDF capacities of 285,000 m^3/year started up in 2000 and changed the export configuration. MDF climbed from 1,000 m^3 in 1999 to 31,000 m^3 in 2000 the main importer being Italy, with 98% of the total. In 2000, MDF was imported from Poland (51.5%), Germany (24.3%), Italy (9.3%) and Austria (7.7%).

Significant changes in the structure of wood-based boards trade are expected in 2001. When reaching operating capacity, there will be the possibility of exporting 200,000 m^3 of particle board/year, 200,000 m^3 of MDF/year and even a twofold increase in export volumes of plywood and veneer.

3.6.4 *Pulp and paper*

The developing trade of pulp, paper and paperboard is exemplified by low domestic production and by a per capita consumption of paper and paperboard products below the European average. With regard to pulp, the present production supplies with the reduced needs of the paper industry yielded a positive trade balance in the last few years. This balance was 3.3 times higher in 2000 than in 1999. The main importers of Romanian pulp were Italy with 10,520 metric tons (32.6%), followed by Yugoslavia with 5,800 metric tons (18%) and Turkey with 3,872 metric tons (12%). Romania imported 4,000 metric tons of woodpulp, mainly from Yugoslavia (35.6%), Germany (26.5%) and Slovakia (23.8%).

The volume of imports for paper and paperboard products was 3.3 times greater than the value of exports in 1999 and 2.5 times higher in 2000. In 2000 the value of paper and paperboard imports amounted to $119.8 million compared with the exports of $47.8 million. Most imports came from EU countries in 2000, representing 67% of total imports for paper and paperboard, 52% for graphic papers and 44% for packaging materials. However, imports of secondary paper products registered a deficit of $120 million in 2000. Romanian exports of paper and paperboard outside the EU countries account for only 39% of the total exports.

In 2001, some changes have been forecast in the foreign trade balance for pulp and paper. New capacities will contribute to the improvement of domestic consumption, especially for highly processed paper and paperboard products.

3.6.5 *Market of certified forest products*

In compliance with an FAO project on the implementation of strategies for Romanian forestry development, there are activities planned for forest product certification. The National Forest Administration is prepared to undergo the certification of 32,000 hectares of forests in the northern region of the country in 2001 in accordance with the norms of Forest Stewardship Council (FSC). Currently, there is no domestic market for certified forest products.

3.7 Integration into the EU

In February 2001 the preparations for the integration of Romania into the European Union advanced when the Government established a programme for the preparation and organization of negotiations with the European bodies. In comparison with other branches of the Romanian economy, the forestry and wood industry sector is more prepared for the assimilation of European standards and legislation in this field. For example, in November 2000 the criteria for measurement,

classification and marking of wood (European Commission certification in accordance with Directive 68/89 EEC) became compulsory. Programmes have been approved for the development of national regulations for the application of Directive 89/106 EEC regarding building woodwork. Also more than 70% of the European standards regarding wood and wood products have been adopted and harmonized.

National regulations are being drawn up for the application of pan-European guidelines at the operational unit level for sustainable forest management. The largest companies are currently implementing quality management systems and product testing methods. However, the numerous small and medium-sized enterprises are not as yet involved in quality control and testing programmes.

3.8 Prospects for the wood industry

In the decade 1990 to 2000 the forest industry underwent transformations in the ownership and organization of enterprises. Despite the dramatic decrease in the volume of manufacturing and exports, it demonstrated successfully its viability as an industry with a steady contribution in the foreign trade balance.

The wood industry is viable, with important development prospects for the following reasons:

- The institutional and legislative frameworks are established for sustainable forest management ensuring an increase of forest cover in order to provide a base of raw materials.
- Manufacturing capacities have been modernized and new capacity installed to bridge the technical gap with more developed countries.
- Important steps have been taken in structural reforms, for example 95% of industrial units have been privatized .
- European Community regulations have been adopted, displaying a concern for the assimilation of the *acquis communautaire*. However, there are still differences in the technology and management of various companies and sectors. In the unification of enterprise perceptions about the market economy concept, an important role is played by professional trade associations in the quality of products.

Analysing the trends of domestic and foreign markets; the Ministry of Industry and Resources has drawn up a strategy for medium- and long-term development of the wood industry through 2010. The strategy promotes the development by Romanian and foreign investors in the following sectors:

- production of furniture and furniture components;
- production of semi-finished and finished wood products;
- production of particle and fibreboards, and composites panel products;
- production of panels surfaced with veneer substitutes (such as melamine and plastic);
- production of prefabricated wood components for housing and other constructions;
- diversification of assortments in the pulp and paper industry.

Development of these sub-sectors depends on an annual average investment of about $125 million.

Chapter 4
Influences on Japanese demand for wood products[1]

Highlights

- Wood use in Japan stems mostly from residential construction, which rivals the United States market in terms of number of housing starts, and presents tremendous market opportunities for overseas producers of structural wood products.
- Post & beam type of construction dominates, but markets for North American-style platform-frame construction are steadily growing.
- Several trends related to wood use are driving the demand for structural wood products in Japan, including the growing importance of high-performance, aesthetically pleasing wood products, the adoption of platform-frame building technologies and engineered wood products, and the emergence of a pre-cut component manufacturing sector.
- Changes are under way in the markets for non-structural wood products for interior applications as Japanese consumer tastes shift towards the use of lighter coloured softwoods and western styles.
- Changing demographics (population stability and an increasing proportion of elderly persons) are having an impact on the use of wood in Japan.
- Changes in regulatory requirements regarding housing in Japan, including the Government Housing and Loan Corporation, the Building Standard Law and the Housing Quality Assurance Law, will have a considerable impact on wood products imports and business relations.
- The future of wood product imports to Japan will be characterized by further global competition, the potential for increased trade protectionism, the need for high performance wood products and systems, and growth in the repair and remodelling market.

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Secretariat introduction

The secretariat would like to thank Drs. David Cohen, Christopher Gaston, and Robert Kozak from the University of British Columbia, Forintek Canada Corporation, and the University of British Columbia, respectively, for this insightful chapter on the demand drivers for ECE region exports to the important Japanese market. While North American companies have been engaged in the Japanese markets for decades, the exports of logs and sawnwood from Europe and the Russian Federation have escalated over the last 5 years, with the exception of a downturn during the 1998-1999 Asian economic crisis. Russia was also an important supplier of logs to Japan before 1990.

This special chapter focuses on a country's wood products markets outside of the ECE region, but which strongly influences the region's production and trade. The *Review* has annually reported on the Japanese market, but with this chapter's analysis, the reasons behind the market forces are exposed.

The factors influencing the demand for wood products in Japan are changing as noted in this chapter. These changes have been reflected in the trends in commodities that Japan imports. They will also have significant implications for ECE region exporters, especially in the medium and long term.

This chapter is one of a continuing series of special chapters in the *Review* that features a country's wood products markets, either a trading partner or a competitor, from outside the ECE region.

4.1 Introduction

In the 1990s, Japan became an increasingly important market for high value European wood products, including sawnwood and laminated sawnwood. This growth was exemplified by the dramatic increase in imports of sawn softwood from Europe between 1992 and 2000. In 1992, there were only 10,000 m^3 exported from Europe to Japan, but this had grown to over 2.7 million m^3 by 2000 (Japan Wood Products Information and Research Center (JAWIC), 2001). Many of the wood products exported from Europe to Japan are high quality, kiln-dried and laminated products from traditional producers losing European market share to lower cost eastern European and Baltic manufacturers. European exports to Japan are expected to continue for the next decade as increasing European production strives to capture export markets.

While much of this increase can be attributed to marketing strategies and policies of European producers, the changing requirements of Japanese wood use have provided, and will continue to provide, opportunities for expanding exports of higher value wood products from Europe to Japan. The majority of wood products exports to Japan are used in house construction and remodelling. Significant changes in these sectors during the past decade have created an increasing demand for stable wood building materials and European-style building products. Understanding these changes is critical to enable European producers to take full advantage of changing opportunities in the Japanese market for wood products.

This chapter provides insight into the recent history and current trends in wood use in Japan and the key factors that will drive Japanese demand in the future.

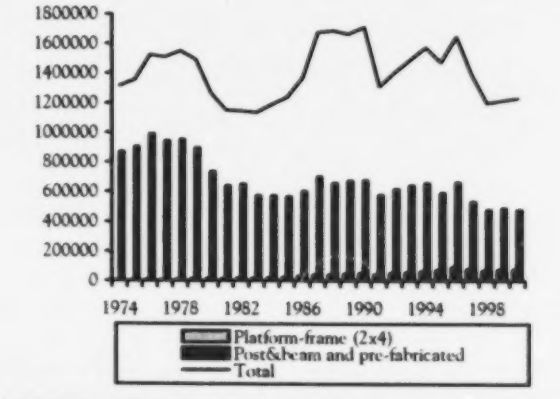
4.2 Background

Most of the solid or composite wood used in Japan is for the construction of residential housing. While this is similar to North America, the levels of home repairs and renovations in Japan are surprisingly low. As such, changes in the numbers and types of houses built in Japan have a direct and immediate impact on the demand for wood products.

During the past three decades, the Japanese housing market has rivalled the United States market in terms of overall housing starts (graph 4.2.1). This is in spite of the fact that the population of Japan is only 126 million people compared to almost 300 million in the United States. However, it is not just the sheer size of this market that makes it attractive. Japan, like Canada and the United States, has a tradition of wood housing. In addition, the Japanese people, unlike Europeans, have embraced many aspects of North American house design and construction over the past 50 years (graph 4.2.2).

GRAPH 4.2.1

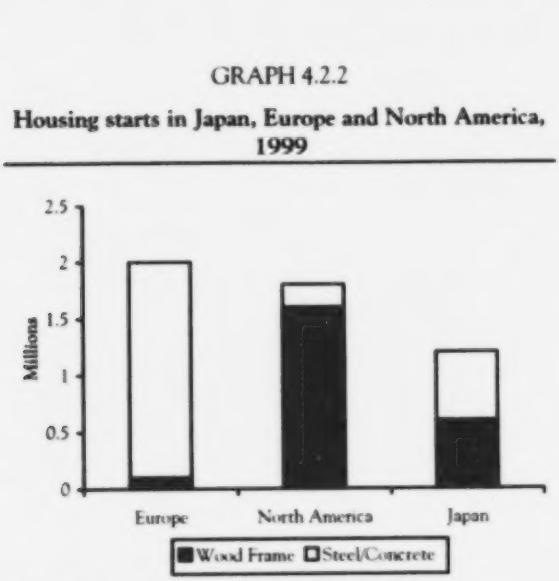
Japanese housing starts, 1974-2000



Source: JAWIC, 2001.

GRAPH 4.2.2

Housing starts in Japan, Europe and North America, 1999



Sources: Jaakko Pöyry (JPC Databanks), 2000; Euroconstruct, 2000; APA Economic Report, 1999; United States Bureau of the Census, 2000 and Japanese Ministry of Construction, 2000.

Houses in Japan are replaced every 20-30 years, most frequently due to loss of structural integrity, decay or a desire to change styles. There are historical and practical reasons for a lifespan less than half of that in Europe or North America for wood houses. Traditionally, earthquakes have led to fires decimating many urban centres. In these coastal regions, houses were built as temporary structures and belongings were portable. When earthquakes occurred people packed up their belongings and waited out the fire in the surrounding and safe mountainsides. They later returned to build houses from wood and paper as only semi-permanent structures. In addition, current building practices in the humid Japanese climate, combined with a culture that does not promote house maintenance, often lead to decay and/or the loss of structural integrity after only a short time[2].

4.3 Wood use trends

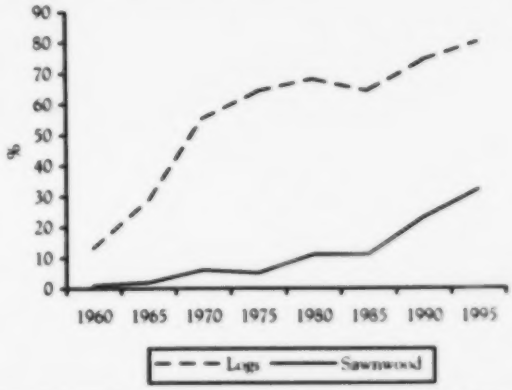
4.3.1 *Substitution trends*

In terms of wood supply, Japan remained mostly self-sufficient up until the early 1960s when the first wave of substitution occurred in wood products. Logs were imported from North America and Southeast Asia to partially replace domestic harvests. The switch from the use of exclusively domestic logs to a heavy reliance on imported logs was brought about by factors such as the high cost of domestic harvesting and a shortage of rural labour in the domestic forest industry. Increasing domestic log costs were a direct result of Japan switching to imported oil for centralized energy production and the dramatic decline in the use of wood (predominantly as charcoal) to generate regionally based power. This dramatically increased the cost of log production since the by-products from the generally poor quality Japanese logs no longer had value. Within a decade, Japan became the largest log-importing nation in the world.

The second wave of substitution occurred during the 1980s as supplying regions restricted log exports due either to domestic demand (e.g. environmental restrictions in the United States) or policies that encouraged production to move up the value chain (e.g. log export restrictions in Indonesia) (graph 4.3.1). As a result, domestically produced sawnwood, produced both from imported and domestic logs, was replaced by imported sawnwood. Domestically produced plywood, often from imported logs, was replaced by imported plywood. This second wave was a result of a combination of factors including the rationalization of the Japanese sawmilling industry, a decline in both the quantity and quality of logs available on the world market, increasing demand due to high levels of housing starts and a strengthening yen. Japan imports four major product types: sawn softwood, sawn hardwood, softwood logs and plywood (graphs 4.3.2, 4.3.3, 4.3.4 and 4.3.5).

GRAPH 4.3.1

Japan's log versus sawnwood imports, 1960-1995

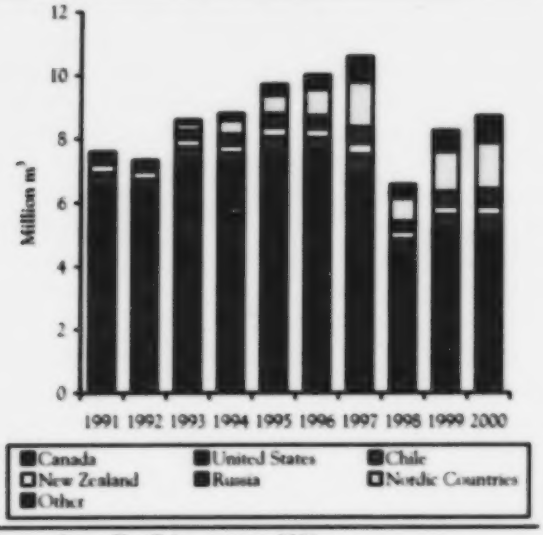


Note: This proportion does not include lumber produced in Japan from imported logs or cants.
Source: *Japan Lumber Journal*, 1998.

[2] For more information, see *Trends in the Japanese Housing Market* by Greg Lampert and Ikehata Shin, 2000. NHA 2514. Prepared for Canada Mortgage and Housing Corporation, Ottawa, Ontario, Canada. Also see *Wood Market Trends in Japan* by Christopher Gaston, David H. Cohen and David Fell, 2000. Special Publication SP-43, ISSN 0824-2119, Forintek Canada Corporation Report published in cooperation with Forest Renewal British Columbia (Victoria, BC, Canada) and Natural Resources Canada (Ottawa, Ontario).

GRAPH 4.3.2

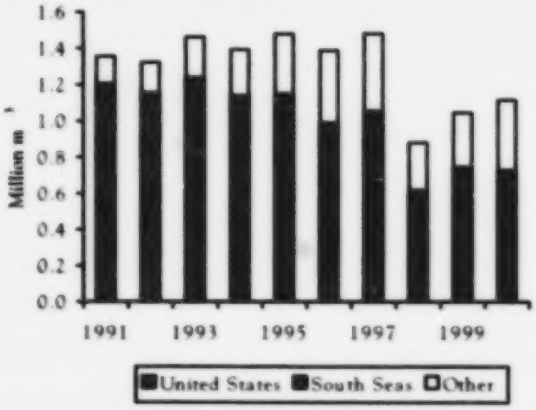
Japan's sources of imports of sawn softwood, 1991-2000



Source: Japan Tariff Association, 2001.

GRAPH 4.3.3

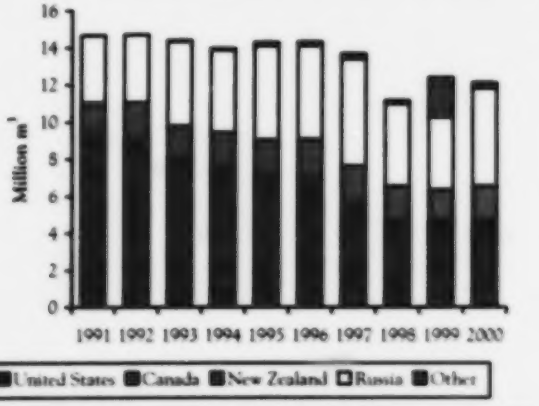
Japan's sources of imports of sawn hardwood, 1991-2000



Source: Japan Tariff Association, 2001.

GRAPH 4.3.4

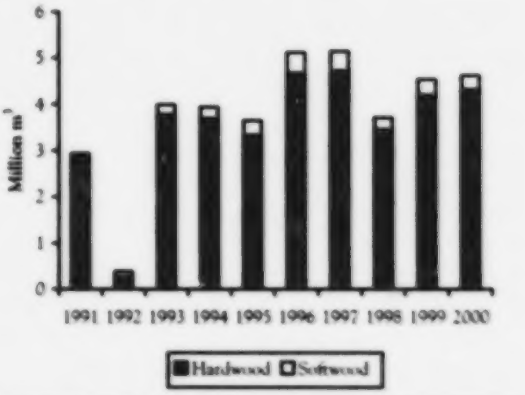
Japan's sources of imports of softwood logs, 1991-2000



Source: Japan Tariff Association, 2001.

GRAPH 4.3.5

Japan imports of plywood, 1991-2000

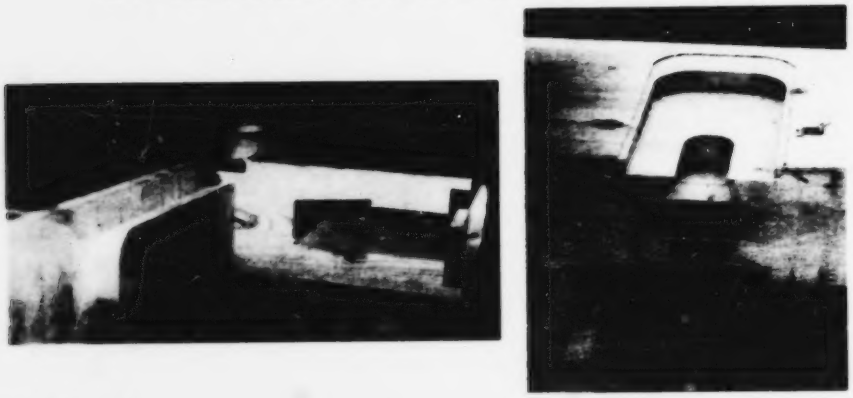


Source: Japan Tariff Association, 2001.

A third wave of wood substitution began in the early 1990s and was characterized by a substitution by type of wood products being demanded in the home-building industry. Traditionally, most wood house construction in Japan had been (and continues to be) post & beam (called "timber frame" in North America). Large structural beams and posts were cut and notched on site for immediate assembly by skilled master carpenters. Very few metal connectors were used (including nails or bolts), but rather elaborate systems of joints were employed (figure 4.3.1). Typically, large solid green members were used and the posts and beams air-dried together in place over time. However, a shortage of skilled carpenters and high labour costs, coupled with a general willingness to lower the cost of a built home (which is about twice that of North America, excluding land costs), meant that things had to change. This led to a number of dramatic shifts, all of which affected the types of wood products demanded in Japan in the 1990s. Each is discussed in turn below.

FIGURE 4.3.1

Notched joints typical of post & beam construction in Japan



(Photographs courtesy of C. Gaston)

4.3.2 *Wood appearance versus performance*

Prices of home construction sawnwood in Japan have always been at a considerable premium over those of North America. This has largely been related to the aesthetic qualities of the wood products being demanded for post & beam construction, such as clear (knot-free) wood, large dimensions, tight growth rings and consistent colours. In the past, the performance of the house structure was almost secondary to aesthetics, epitomized by the fact that houses were not expected to last that long before being replaced.

However, the Kobe earthquake of 1995 changed this. Japanese home consumers began to seriously question the safety of homes – namely the styles and materials used in construction. This shift has had far reaching impacts on the Japanese housing market, either directly or indirectly affecting all of the remaining changes listed below.

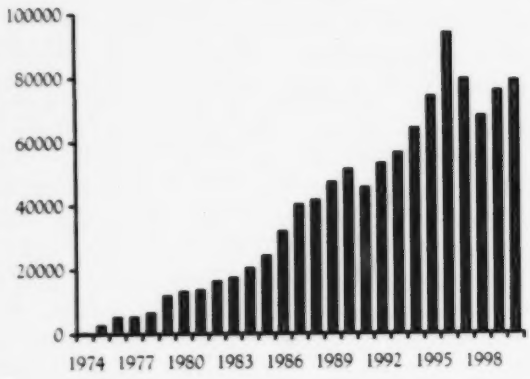
4.3.3 *Adoption of platform-frame building technology*

Since its introduction in the early 1970s, Japan has gradually adopted the North American style of platform frame technology (referred to as 2x4 in Japan). However, this growth intensified in the 1990s, leading to a peak, before the economic turndown, of nearly 100,000 new 2x4 homes being built in 1996 (graph 4.3.6). Even taking the economic turndown into account, 2x4 starts as a percentage of total wood starts continue to rise, reaching an all-time high of more than 14% in 2000 (table 4.3.1).

The adoption of the platform-frame housing style served to create a captive market for North American "dimension lumber" (2x4 inches nominal, 2x6, 2x8, etc.) and sheathing products (plywood and oriented strand board (OSB)). Trade associations of sawnwood manufactures in the United States and Canada

GRAPH 4.3.6

Japan 2x4 single-family housing starts, 1974-2000



Source: JAWIC, 2001.

TABLE 4.3.1

2x4 single-family housing starts as a percentage of total wood starts in Japan, 1979 to 2000

1979	1.3%	1990	7.0%
1980	1.7%	1991	7.3%
1981	2.1%	1992	7.9%
1982	2.4%	1993	8.1%
1983	2.9%	1994	8.9%
1984	3.4%	1995	11.1%
1985	4.1%	1996	12.4%
1986	5.0%	1997	13.0%
1987	5.4%	1998	12.5%
1988	6.0%	1999	13.4%
1989	6.6%	2000	14.2%

Source: JAWIC, 2001.

successfully introduced their styles into Japan, creating a demand for their standard sawnwood sizes. However, unlike dimension lumber used in North America, a proprietary "J-grade" evolved, that in essence has both structural and aesthetic requirements. This grade offers considerable price premiums over the typical North American construction grades.

In addition to the adoption of the 2x4 system, Japanese builders were also interested in improving the performance and lowering the cost of building post & beam homes. In some cases, this has led to the adoption of a "hybrid" building style, which strives to take advantage of the best characteristics of the two building styles (figure 4.3.2). Examples of this include: 1. adding plywood or OSB to post & beam structures to improve lateral load resistance; 2. the use of non-load bearing members between structural posts (called *mabashira* in Japan); 3. the use of metal connectors and hangers to complement or even replace traditional joinery; and 4. the use of panellized construction components such as wall panels.

4.3.4 *Growth in "pre-cut" component manufacturers*

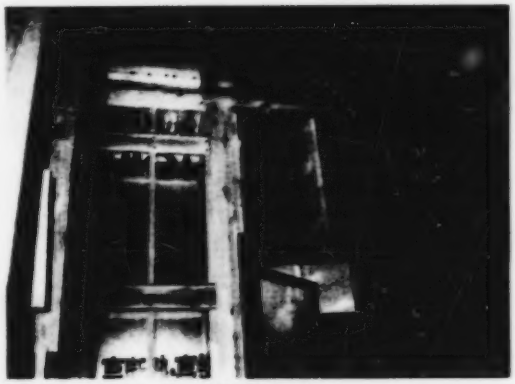
To address the problem of the declining number of skilled traditional post & beam carpenters and the high costs associated with on-site joinery in the past decade, the growth of pre-cutting posts and beams manufactured in factory-automated environments has been impressive. The number of pre-cut plants in Japan increased from 181 in 1986 to 890 in 1998, with the number of housing units supplied increasing from 23,000 to 210,000 over the same period of time *(Softwood Export Council)*. While more recent estimates are not available, anecdotal evidence points to an even more dramatic growth in the last few years. The most significant impact of this trend has been a change from the use of green, large dimension lumber to kiln-dried timbers and glue laminated posts and beams (see next section). There is a growing use of pre-fabricated systems, including roof trusses and walls pre-built in factories (figure 4.3.3). However, pre-cut manufactures mostly produce ready-to-assemble posts & beams (figure 4.3.4).

4.3.5 *Adoption of engineered wood products*

The popularity of glue-laminated (glulam) sawnwood can be linked to many of the other trends noted, including increased performance, ease of use in pre-manufactured systems and lower costs relative to solid kiln-dried timbers. In 1999, laminated posts and beams had shares of 66% and 29% of the market, respectively *(Japan Lumber Reports)*. Japan uses glulam for non-structural purposes as well (primarily imported from the South Seas) (graph 4.3.7). Finally, in addition to the

FIGURE 4.3.3

Pre-fabricated wall system in Japan



(Photograph courtesy of C. Gaston)

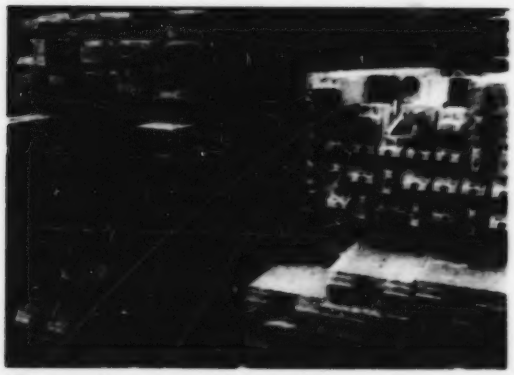
FIGURE 4.3.2

Examples of post & beam "hybrid" construction in Japan

(Photographs courtesy of C. Gaston)

FIGURE 4.3.4

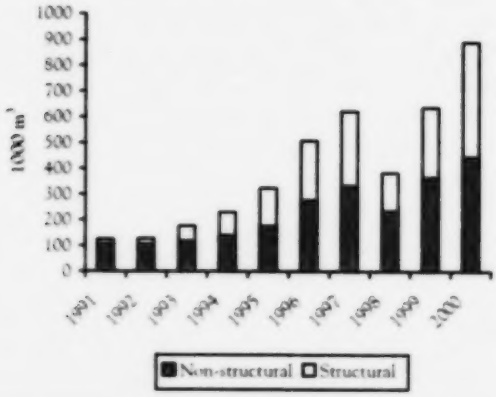
Pre-cut posts and beams ready to assemble



(Photograph courtesy of C. Gaston)

GRAPH 4.3.7

Japanese imports of glulam, 1991-2000



Source: Japan Tariff Association, 2001.

imports shown in the graph, Japan produces roughly 300,000 cubic metres of glulam annually, much of which is produced from imported sawnwood products.

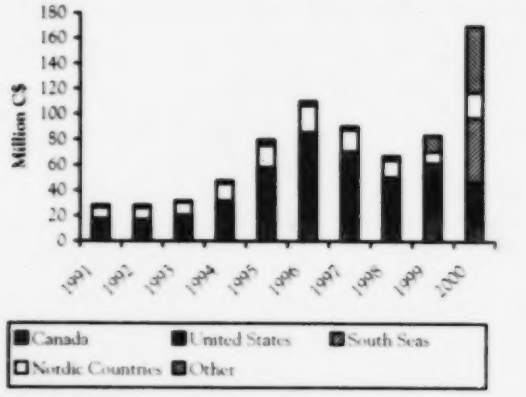
While Japan does use engineered wood products such as laminated veneer lumber (LVL) and parallel strand lumber (PSL), their use is minor compared to glulam. Wood I-joists have not yet been adopted in Japan.

4.3.6 *Interior wood use demand changes*

In addition to the structural wood use substitutions that have occurred in Japan in the recent past, there have also been substitutions for interior uses of wood. Most of these are related to a demand for lighter colours, and more of a "western" style, both of which have been an advantage for producers and exporters of softwoods. This has been true for wood furniture, cabinetry, flooring, wainscoting, windows, doors and other interior products. In the last decade, imports of wood products for interior use have continually been increasing, with the exception of 1997 and 1998 economic downturn. Imports for two value-added products, wooden windows and doors are currently recovering from the recent economic downturn (graphs 4.3.8 and 4.3.9). Lastly, it is notable that wood is steadily displacing the use of other materials like steel and plastics in interior applications. A major driver is the importance that the Japanese place on the concept of the "healthy house" and indoor air quality.

GRAPH 4.3.8

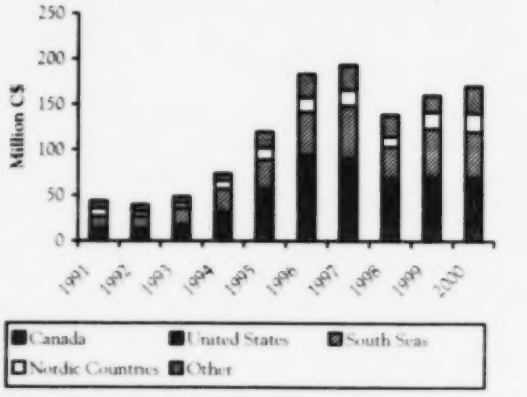
Japanese imports of wooden windows, 1991-2000



Source: Japan Tariff Association, 2001.

GRAPH 4.3.9

Japanese imports of wooden doors, 1991-2000



Source: Japan Tariff Association, 2001.

4.4 General trends impacting wood use

As Japan looks to the future, there are two important trends that will have a strong impact on wood use: 1. demographics; and 2. the changing regulatory environment.

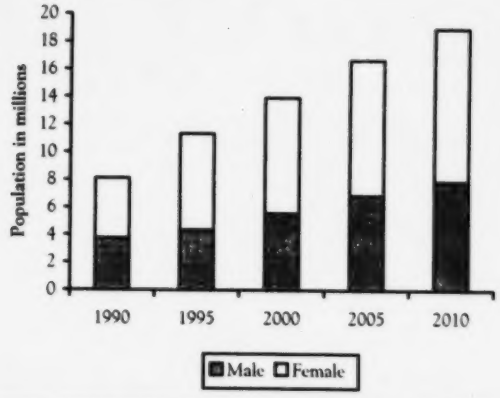
4.4.1 *Demographics*

The population in Japan is expected to stabilize and actually start to shrink during the first decades of the twenty-first century. Low birth rates, fewer marriages and very little immigration contribute to this scenario.

This is combined with a dramatic increase in the proportion of the elderly population (over 70 years). Thus, while the population is expected to remain relatively stable at 125 to 126 million until 2020, the number of elderly will increase dramatically (graph 4.4.1).

GRAPH 4.4.1

Number of elderly people (over 70 years) in Japan, 1991-2010



Sources: Japan Census, Statistics Bureau and Statistics Center, 2001.

This trend of stable populations and an increasing proportion of the population over the age of 70 years will have a dramatic impact on design, layout, use and construction of houses. There are already signs of this important demographic shift, for example, barrier-free access, elevators, low-rise stairs and larger bathrooms to accommodate wheelchairs. This will ultimately have a positive impact on the use of wood and the types of wood products imported.

4.4.2 *Changing regulatory environment*

Japan is in the midst of a "big bang" in the residential construction sector, driven by changes in both mandatory and voluntary guidelines and regulations. There are three important areas of change in the regulatory mechanisms regarding residential construction. The first consists of changes to the Government Housing and Loan Corporation (GHLC) implemented between 1998 and 2000. This institution is primarily concerned with providing mortgages for new house construction and reform. The second consists of changes to the Building Standard Law (BSL). Changes that transform the BSL from a specification-based building code applicable to only certain types of construction, to a performance-based building code that applies to all types of residential construction were initiated in May 1998 and are currently being implemented. The third important area of change is the new Housing Quality Assurance Law (HQAL) enacted in April 2000. This law requires interim and final building inspections, which lead to mandatory 10-year warranties. The GHLC and BSL require completion guarantees for new houses being constructed and encourage the use of voluntary performance measures for new house construction.

4.4.2.1 *Government Housing and Loan Corporation*

According to the 1998 revision of the *Government Housing and Loan Corporation Manual*, there are three classifications for housing: 1. barrier-free; 2. energy saving; and, 3. durable. The objective of barrier-free housing is to make a house "friendly" in case one of its inhabitants is disabled or has decreased physical capacities. This is occurring more frequently due to the aging society discussed above. Specifics include minimum interior opening sizes, minimum widths of passageways, minimum sizes of bathrooms, non-slip floor surfaces, use of handrails, etc.

Energy saving houses must have a structure that will conserve heat in accordance with GHLC specifications and standards provided by the Ministry of Construction, Energy Organization. Specifications provide specific details on both the design and installation to meet a variety of government guidelines regarding air tightness, ventilation and window performance. The details ensuring energy efficiency are expected to become more rigorous given the Japanese Government's and consumers' attitudes toward energy efficiency and global warming.

Durability is specified for all structural aspects of homes, from foundations to wall systems. This includes the durability of wood by species, increased foundation heights above finished grades, improved crawl spaces, attic ventilation requirements and more. The focus on durability is due to the Japanese concern with stability given the devastation of the Kobe earthquake of 1995.

To qualify for the Standard Interest Rate Loan, the house must qualify as both durable and barrier-free or

both durable and energy saving. Many of the mandatory and recommended practices necessary to qualify for each of the three standard loan criteria may need to be "corrected" for specific regional requirements.

It is expected that some recommended practices may become mandatory in the future. These regulations apply to both traditional post & beam houses and to 2x4 houses, whereas in the past, they only applied to 2x4 houses. The importance of the GHLC requirements cannot be overstated since 45% of all funding required to construct new houses and over 75% of all funds that are borrowed to construct new houses are provided by the GHLC.

4.4.2.2 *Housing Quality Assurance Law*

One of the key parts of the Housing Quality Assurance Law requires homebuilders to provide homebuyers with a 10-year warranty on all new houses built in Japan. This warranty must cover the house against structural defects and low durability. Included in the definition of low durability is rain penetration into the structure, a problem in some North American residential construction as well. Homebuyers may make a claim against the homebuilder if the structural stability or durability of a house does not meet a specific set of criteria for structural performance, water leakage and external cracks. This law includes mechanisms for dispute resolution and for small firms to have adequate insurance to offer this type of warranty.

To ensure that homebuyers are not stuck either with unfinished houses or houses under heavy lien, there is also a provision in the HQAL (the Completion Guarantee System) that protects homebuyers against defaulted builders or contractors. This system provides homeowners with insurance so that there will be sufficient funds to complete construction of the house in case of a bankruptcy. While larger builders are of sufficient financial strength and size to offer this insurance on their own, most small builders are struggling with new approaches to provide both the 10-year house warranty and the completion guarantee.

The third part of the HQAL is voluntary, but is proving to have some of the greatest impact, at least in the short term. These are the Nine Voluntary Performance Indicators (table 4.4.1). They provide a set of standards for nine indicators against which the performance of specific houses can be compared. The overall objective of this approach is to provide homebuyers with an unbiased means of comparing nine important criteria both between different houses and different homebuilders.

TABLE 4.4.1

Nine performance indicators in Japan

Indicator	*Explanation*
Structural stability	Earthquake-proof, loading, foundation strength
Fire safety	Fire spread time, heat sensors, fire escapes, etc.
Durability	Decay and deterioration
Ease of maintenance	Ratio of exclusive pipes to common pipes[1]
Energy efficiency	Insulation, window types, etc.
Air quality	Ventilation, absence of formaldehyde
Light environment	Ratio of exterior openings to wall area
Acoustics	Insulation for noise
Barrier-free design	Convenience for elderly and physically impaired

1 Maintenance is facilitated when water and drain pipes share common passage ways, rather than when single, "exclusive" pipes are run individually.

Source: Japan Lumber Journal, 2000.

4.5 Summary

The future of wood products use in Japan will be influenced and characterized by a variety of factors. There will be increasing global trade, resulting in a highly competitive market environment, a growing number of producing regions targeting Japan with both primary and secondary wood products, and the potential for increased trade protectionism (e.g. government imposed "safeguards"). In addition, the climate of regulatory reform will continue in Japan. These changes will probably result in the creation of a house construction sector that increasingly relies on high performance wood products and systems to meet stringent regulatory requirements, as well as performance-based labelling to assure that these requirements have been met. This environment presents potential, yet challenging, market opportunities for producers of engineered wood products and wood building systems.

The old adage, "the only thing constant is change", could not be more true than for Japan, especially with respect to its demographic make-up and economic well being. There are several notable shifts occurring in Japan, each likely to impact the degree of wood products use. For example, the home repair and remodelling sector (termed 'reform' in Japan) is becoming more and more important as policies are put forth which encourage long-lasting and durable homes. There is an emerging trend towards more "do-it-yourself" repairs and remodelling.

So-called "healthy houses", using natural and durable materials and minimal energy requirements, are becoming very popular, especially in northern Japan. The definition of what constitutes a "healthy house" provides opportunities for focused exporters into this market. Lastly, while housing starts are expected to decline or remain stable in the future, markets for seniors' housing, non-residential buildings and value-added products are expected to grow.

All of these shifts point to increased opportunities for wood products manufacturers to export products into Japan. In the near future, the strategic focus both for European and North American producers should be on continuing to take advantage of these market opportunities, while fending off market threats.

4.6 References

Christopher Gaston, David H. Cohen and David Fell, 2000. *Wood Market Trends in Japan*. Special Publication SP-43 ISSN # 0824-2119. Forintek Canada Corp. Report published in cooperation with Forest Renewal BC (Victoria, BC) and Natural Resources Canada (Ottawa, Ontario). 32 pp.

Jaakko Pöyry (JPC Databanks), 2000, Euroconstruct, 2000, APA Economic Report, 1999, United States Bureau of the Census, 2000 and Japanese Ministry of Construction, 2000.

Japan Census 2000 by Statistics Bureau & Statistics Center, Ministry of Public Management, Home Affairs, Posts and Telecommunications, 2001 http://www.stat.go.jp/english/zuhyou/15k3d-2xls. Authors' analysis of data from Table 2: Population by 5-year age groups and sex as of October 1, each Year.

Japan Wood-Products Information and Research Center (JAWIC), 2001. Wood Supply and Demand Information Service. April, 2001. Tokyo. 16 pp.

Japan Lumber Journal (JLJ), 1998. *Japan's Demand for Timber by Use*. Vol. 39, No. 24, p. 3. Published by Japan Lumber Journal, Inc. and Japan Forestry Economic Journal Co. Ltd. Tokyo.

Japan Lumber Journal (JLJ), 2000. *Housing Big Bang – What and How Will Change?* Housing Quality Assurance Law. Vol. 41, No. 2, p. 11. Published by Japan Lumber Journal, Inc. and Japan Forestry Economic Journal Co. Ltd. Tokyo.

Japan Tariff Association, 2000. Imports of commodity by country. Statistical tables.

Greg Lampert, and Ikehata Shin, 2000. *Trends in the Japanese Housing Market*. NHA 2514. Prepared for Canada Mortgage and Housing Corporation. Ottawa. 45 pp.

Softwood Export Council. 520 SW Sixth Avenue, Portland, Oregon, United States.

Chapter 5
Wood raw material – production, trade and consumption

Highlights

- Roundwood was in oversupply in Europe in 2000 following the extensive windthrow from the December 1999 storms, which mainly affected France, Switzerland, Denmark and Germany.
- The storm damage had these effects on roundwood markets in the EU/EFTA subregion in 2000: an acceleration of production and exports by 12% and 50% respectively, a 30% drop in prices, and a 19% increase in net imports.
- Despite the surplus windthrow volumes in 2000 in western Europe, exports of wood raw material to western Europe from CIS as well as from central and eastern European countries increased rapidly by 13% and 8% respectively.
- A change in traditional roundwood trade flows is occurring in the UNECE region as evidenced by a significant decrease in Germany's net trade with countries of the EU/EFTA subregion owing to a sharp increase in roundwood imports from the CIS since 1995.
- Roundwood production and consumption in the CIS increased significantly, by nearly 60% from 1998, although it had decreased annually since the beginning of market reforms.
- Incomes from expansion of roundwood exports from CIS and "Other Europe" countries are increasingly used to improve obsolete machinery leading to increased productivity and medium-term domestic purchasing power.
- While the United States lost some market share in Japan, industrial roundwood trade between the United States and Canada is increasing.
- Production and consumption of roundwood in the UNECE region both rose almost 5% in 2000, to reach 1.3 billion m^3 in 2000, mainly because of the storm damages in Europe; however, removals remain still well below the supply potential of the forests.
- Roundwood exports and imports both increased in UNECE region in 2000 by roughly 18%, while net exports expanded same time by 22%.

Introduction

There are some specific data quality issues concerning wood raw materials:

- Distinction between the types of roundwood products (logs, pulpwood, wood fuel and other industrial roundwood) is rather difficult both in practice and statistically. For example, pulpwood with larger diameter can be used as small-size sawlogs and vice versa.
- In trade statistics no distinction is made between pulpwood, logs and other industrial roundwood.
- For most of the CIS countries the secretariat has estimated roundwood removals based on TBFRA and FAO data.
- In order to compare subregions over time the secretariat also made trend calculations for a few important countries which did not provide current data via the Joint Forest Sector Questionnaire; for example Canada. These data are not shown in the published tables, but are included in regional and product totals.
- Production is used here as a synonym for removals, which are defined as forest roundwood volumes felled and removed from the forests.
- Removals includes personal needs of forest owners which in some countries, especially after the December 1999 storms, could have reached significant volumes.

5.1 UNECE region developments

In 2000 the situation in the European roundwood markets is heavily influenced by the roundwood oversupply caused by the nearly 200 million m³ of windthrow from the three storms in December 1999[1] (table 5.1.1).

For France, Switzerland, Denmark and Germany, the most affected countries, in the order of magnitude of downed timber compared to average removals, the volume of windthrow was nearly 100 million m³ more than normally harvested. Is it estimated that only about the half of this volume was brought to markets in 2000. In some cases roundwood still remains in the forests, either because of high harvesting and transportation costs or unacceptable wood quality, or for ecological reasons. Further roundwood volumes are still stored in special facilities in order to stabilize the roundwood markets.

TABLE 5.1.1

December 1999 windthrow versus 1998 annual removals in Europe
(Million m³)

	Windthrow volumes 1999	*Annual removals 1998*	*% of annual removals*
France	139.6	42.9	325.4
Switzerland	12.1	4.2	288.1
Denmark	3.5	2.2	159.1
Germany	30.0	39.0	76.9
Sweden	5.0	58.1	8.6
Poland	2.0	23.3	8.6
Austria	0.4	14.0	2.9
Lithuania	0.4	4.9	8.2
Total	193.0	188.6	102.3

Sources: National reports, www.unece.org/trade/timber and UNECE/FAO TIMBER database, 2001.

On average over the last five years, roughly 1.3 billion m³ of roundwood were harvested in the UNECE region annually, which corresponds to 0.8 m³ per hectare of forest area (FAO Global Forest Resources Assessment 2000). The volume of roundwood removals is increasing slightly by about 33 million m³ annually, with a larger than normal increase of 4.6% in 2000. Depending on forest stand conditions and the accessibility of forests, the harvesting rate differs between subregions. Possibilities for sustainable roundwood supply in the UNECE region as a whole, and the subregions as well, estimated on the basis of net annual increment in forests available for wood supply, are much higher than current harvests. The full potential supply is not used, mainly for economic reasons, but also for increasing environmental demands from forests. However, there are concerns about the sustainability of wood supply in war-affected areas, e.g. in parts of former Yugoslavia as well as illegal cuttings in parts of CIS.

The UNECE region has an important part, nearly 43%, of global forest resources. More than one third of global roundwood supply is produced in this region (table 5.1.2). This share would be much higher if only industrial roundwood was taken into account. The UNECE region's share of global roundwood removals increased in 1999 essentially because of the recovery in CIS, which moved from 3.3% of the global removals up to a share of 4.8%. The North American share of world roundwood removals has remained constant at about 21% since 1996.

The major determinants for changes in roundwood markets in the UNECE region from 1996 to 2000 have been the ongoing stabilization in the policy framework of eastern European countries and the storm damages from 1999.

[1] For detailed information: "Effects of the December 1999 Storms on European Timber Markets", a special chapter in the *Forest Products Annual Market Review, 1999-2000*, 15 pages.

TABLE 5.1.2

Ratio between UNECE and global roundwood removals, 1996-1999

(% of removals)

UNECE regions	*1996*	*1997*	*1998*	*1999*
EU/EFTA	7.9	8.1	8.3	8.4
Other Europe	3.1	3.2	3.3	3.6
CIS	3.9	3.9	3.3	4.8
North America	21.0	20.5	20.8	20.9
Total UNECE	35.8	35.7	35.7	37.6

Sources: UNECE/FAO TIMBER and FAO databases, 2001.

5.1.1 *Wood raw material production*

Roundwood production in the UNECE region increased from 1996 to 2000 at an average growth rate of almost 33 million m³ annually and reached 1.3 billion m³ in 2000 (table 5.1.3).

The development of roundwood production in EU/EFTA countries was characterized by a significant increase of removals, corresponding to 11.6 million m³ annually on the average from 1996 to 2000. However, removals rose sharply between 1999 and 2000, by 11.7%, mainly due to the windthrows from the December 1999 storms.

The situation in most of the central and eastern European countries ("Other Europe") and also in CIS is stabilizing as a result of market economy reforms. Roundwood production was characterized by a dynamic growth in the CIS, especially between 1998 and 2000 (graph 5.1.1). Production grew annually in the CIS subregion by 12.1 million m³ on average from 1996 to 2000, and between 1999 and 2000 growth was 9.0%. However, CIS removals are still far below the peak level during the 1980s.

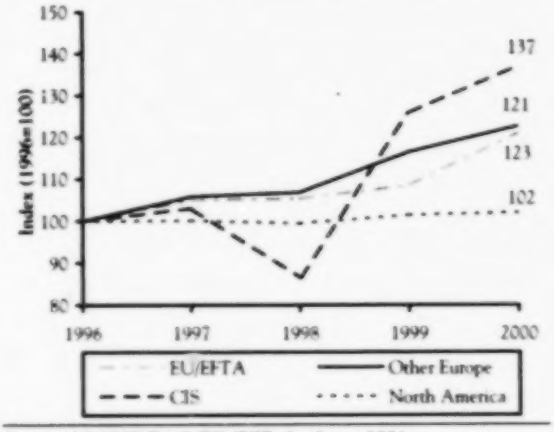
In comparison to the rapid growth in CIS removals during the last two years, roundwood production in "Other Europe" increased by only 5.3% in 2000.

Developments in North America appeared stable. This subregion is still the leading producer of roundwood in the UNECE region, with about 690 million m³ removals annually. This is roughly 50% of total removals in the UNECE region and 20% worldwide.

The structure of wood raw material production in the UNECE region is dominated by logs (48%), pulpwood (26%) and wood fuel (13%). Production of other wood raw materials (chips and particles, wood residues and charcoal) was minor. Production of pulpwood increased rapidly, with an average growth rate of about 17.5 million m³ per year over 1996-2000. Between 1999 and 2000 growth of wood residues was the highest of all product groups, at about 12.2%. At the same time other industrial roundwood is slightly decreasing by 3.8% (graph 5.1.2).

GRAPH 5.1.1

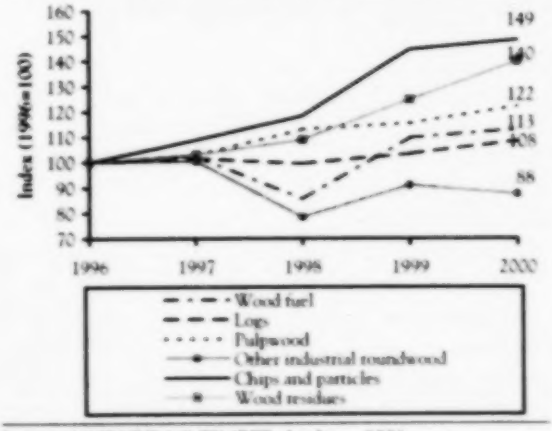
Roundwood production in the UNECE region, by subregions, 1996-2000



Source: UNECE/FAO TIMBER database, 2001.

GRAPH 5.1.2

Production of wood raw materials in the UNECE region, by product groups, 1996-2000



Source: UNECE/FAO TIMBER database, 2001.

5.1.2 *Trade of wood raw materials*

For the analysis of trade of wood raw materials two sources were used: TIMBER database and FAO trade flows data.

The TIMBER database, based on the Joint Forest Sector Questionnaire, has statistics on national exports and imports of forest products, but not on the direction of trade flows.

TABLE 5.1.3

Production of roundwood (removals) by selected countries, 1996-2000

(1,000 m³)

	1996	1997	1998	1999	2000	Average growth rate	% change 1999 to 2000
EU/EFTA	253,183	266,042	266,921	274,682	306,785	11,584	11.7
of which:							
Sweden	56,300	60,200	60,600	58,700	61,800	950	5.3
Germany	37,014	38,207	39,052	37,634	54,361	3,412	44.4
Finland	46,272	51 798	53,660	53,637	54,263	1,782	1.2
France	33,143	3 .,932	35,527	43,008	50,170	4,213	16.7
OTHER EUROPE	99,878	105,735	106,719	116,372	122,589	5,606	5.3
of which:							
Poland	20,287	21,635	23,107	24,268	25,652	1,336	5.7
Turkey	19,411	18,050	17,668	17,615	17,767	-372	0.9
Latvia	8,080	8,922	10,030	14,008	14,488	1,790	3.4
Czech Republic	12,600	13,491	13,991	14,203	14,441	439	1.7
CIS	124,123	127,890	107,374	156,168	170,253	12,054	9.0
of which:							
Russian Federation	101,750	113,798	95,000	143,600	158,100	14,250	10.1
Belarus	15,707	7,585	5,902	6,561	6,136	-2,017	-6.5
Ukraine	6,252	6,053	6,053	5,920	5,920	-80	0.0
NORTH AMERICA	674,063	674,683	670,635	684,043	687,878	3,699	0.6
Canada	183,462	188,803	176,619	186,402	187,444	556	0.6
United States	490,601	485,880	494,016	497,641	500,434	3,143	0.6

Source: UNECE/FAO TIMBER database, 2001.

Using the FAO direction of trade data, trade flows of industrial roundwood were analyzed in more detail. Based primarily on the Joint Forest Sector Questionnaire and UN COMTRADE statistics, the FAO database is available only up to 1999.

The indicated UNECE subregions and the "non-ECE" subregion include all countries which are specifically mentioned in the FAO database. The categories "Other developed" and "Other developing" contain the volumes traded which are shown in the FAO Yearbook of Forest Products as "NES" (not elsewhere specified). "Other developed" can therefore include, in some cases, countries of UNECE subregions whose trade was too minor to be reported separately. Unfortunately, some data could not be analysed in detail; for example, exports from "Other developed" countries to the EU/EFTA subregion, which is based on the FAO statistics, amounts to nearly 8.3% of global roundwood trade.

5.1.2.1 *Analysis based on the TIMBER database*

Because of the high transportation costs in comparison to processed timber, less than 10% of UNECE region roundwood production is traded internationally. The region as a whole is a net exporter of roundwood, with 13.1 million m³ in 2000. Net exports are expanding, especially after the December 1999 storms in Europe. Roundwood imports as well as exports in the UNECE region as a whole increased by about 18% between 1999 and 2000, whereas since 1998 the net exports of the UNECE region have roughly doubled (table 5.1.4).

The main reason for this expansion in trade was the increasing exports from the Russian Federation since 1996. The average growth rate amounted to nearly 4 million m³ per year. Roundwood exports from Russia in 2000 were 31.4 million m³. The main reasons behind the growth in exports are lower prices, weakness of domestic conversion of roundwood as well as comparatively short transport distances from eastern suppliers to western markets. There are some signs that the expansion of exports of roundwood is only a medium-term development, because in the long term exports of value-added products should augment.

The EU/EFTA subregion is the largest importer, where roundwood imports nearly doubled since 1996. They grew by 19.3% between 1999 and 2000, reaching a

TABLE 5.1.4

Roundwood exports and imports in the UNECE region, 1996-2000
(1,000 m³)

	1996	1997	1998	1999	2000	Average growth rate	% change 1999 to 2000
EXPORTS							
EU/EFTA	12,240	14,301	16,062	16,247	24,310	2,609	49.6
of which:							
France	2,573	2,655	3,258	3,442	6,590	882	91.5
Germany	3,046	4,063	4,902	4,033	5,013	390	24.3
Switzerland	998	1,160	1,021	1,239	3,789	566	205.8
Denmark	222	236	288	290	1,757	312	505.9
Other Europe	10,005	12,941	15,292	16,001	17,290	1,763	8.1
of which:							
Estonia	1,927	3,041	3,875	4,016	4,432	599	10.4
Latvia	1,946	3,139	4,251	3,751	4,353	543	16.1
Czech Republic	2,817	2,827	2,661	2,798	2,030	-160	-27.5
Slovakia	567	1,081	735	1,232	1,759	254	42.8
CIS	17,710	19,950	22,343	29,968	33,781	4,216	12.7
of which:							
Russian Federation	16,675	18,753	20,947	28,280	31,430	3,904	11.1
Belarus	670	711	881	834	945	67	13.3
Ukraine	356	479	508	844	844	134	0.0
North America	13,224	11,897	14,407	14,022	14,994	566	6.9
Canada	1,155	901	2,067	2,248	2,984	500	32.8
United States	12,069	10,996	12,339	11,775	12,010	66	2.0
IMPORTS							
EU/EFTA	34,700	40,253	49,036	52,476	62,579	6,798	19.3
of which:							
Sweden	5,066	7,745	9,301	10,428	11,904	1,636	14.2
Finland	6,613	6,775	9,347	10,301	10,004	1,031	-2.9
Austria	4,747	5,433	5,237	7,093	8,464	909	19.3
Spain	1,974	2,137	4,150	3,243	7,533	1,222	132.3
Other Europe	2,915	3,546	4,194	4,933	6,075	771	23.1
of which:							
Turkey	1,249	1,049	1,346	1,430	1,883	165	31.7
Czech Republic	218	505	784	817	954	178	16.8
Poland	394	288	372	591	732	98	23.9
Slovenia	258	333	294	491	496	63	1.0
CIS	827	526	483	396	497	-79	25.4
of which:							
Russian Federation	481	335	228	153	223	-70	45.8
Belarus	0	0	60	150	105	36	-29.9
Kazakhstan	0	0	0	0	76	15	...
North America	6,908	7,563	8,044	7,685	8,118	254	5.6
Canada	6,156	6,753	7,012	6,201	6,543	22	5.5
United States	752	810	1,032	1,484	1,575	232	6.1

Source: UNECE/FAO TIMBER database, 2001.

TABLE 5.1.5

Exports and imports of wood residues, chips and particles, 1996-2000

(1,000 m³)

	1996	1997	1998	1999	2000	Average growth rate	% change 1999 to 2000
EXPORTS							
EU/EFTA	8,072	7,429	12,251	8,365	8,253	130	-1.3
of which:							
Germany	2,987	3,522	7,677	3,653	3,097	35	-15.2
France	1,211	1,156	1,318	1,568	1,804	160	15.1
Austria	1,707	557	699	842	961	-121	14.1
Belgium	...	...	...	698	671	...	-3.9
Other Europe	1,871	1,824	2,091	2,486	2,572	206	3.4
of which:							
Estonia	748	747	1,070	1,158	796	51	-31.3
Latvia	198	235	334	514	733	135	42.6
Czech Republic	552	479	339	497	662	24	33.2
Slovakia	157	185	181	151	165	-2	9.3
CIS	644	701	529	600	651	-9	8.5
North America	8,954	7,919	7,562	7,774	7,035	-398	-9.5
Canada	1,717	1,707	1,498	1,575	1,830	9	16.2
United States	7,237	6,212	6,064	6,199	5,205	-408	-16.0
IMPORTS							
EU/EFTA	10,493	10,950	12,724	12,002	12,330	473	2.7
which:							
Italy	1,155	1,499	1,703	1,759	2,082	211	18.4
Germany	720	873	2,041	1,204	1,533	196	27.3
Belgium	...	...	...	1,489	1,324	...	-11.1
Finland	740	943	1,079	1,118	1,229	115	9.9
Other Europe	399	707	219	333	480	-21	44.4
of which:							
Slovenia	49	69	84	119	154	26	29.5
Czech Republic	23	54	65	73	95	16	30.1
The fYR of Macedonia	0	1	1	1	86	17	12137.1
Hungary	199	450	34	49	46	-71	-5.3
CIS	1	3	3	5	6	1	12.0
North America	2,516	3,075	2,827	2,044	2,271	-152	11.1
Canada	933	1,611	1,816	1,112	1,328	29	19.4
United States	1,583	1,464	1,011	932	943	-181	1.2

Source: UNECE/FAO TIMBER database, 2001.

record of 62.6 million m^3. The imports came mainly from CIS and "Other Europe" subregion, and also from "Other developed" countries. The EU/EFTA subregion receives about one fourth of its industrial roundwood imports from countries within the subregion and exports nearly 90% to the countries of the same subregion (intra-trade).

Simultaneously, the net import of roundwood to the EU/EFTA subregion increased by 4.2 million m^3. In 2000, the roundwood net imports of EU/EFTA countries amounted to 38.3 million m^3.

North American exports fell from 13.2 million m^3 in 1996 to 11.9 million m^3 in 1997, which could be linked to the reduced harvesting on national forests in the United States. The subregion is a stable net exporter with more then 6 million m^3 annually.

At 3.4 million m^3 the UNECE region was an important net exporter of wood residues, chips and particles. The main exporters are EU/EFTA subregion with 8.3 million m^3 in 2000 and North America with 7 million m^3. The EU/EFTA imported 12.3 million m^3 of these materials in 2000. While exports of the UNECE region decreased between 1999 and 2000, owing to a 3.7% drop by the United States, imports grew by 4.9%. This led to a decrease in net exports over 1996-2000 by 29.3% (table 5.1.5).

5.1.2.2 *Analysis based on FAO trade flows database*

The analysis of industrial roundwood trade flows for the period 1996-1999 indicates that the UNECE region has more than the half of the global industrial roundwood trade (tables 5.1.6 and 5.1.7). Trade within the UNECE region (intra-trade) shared more than one third of global roundwood trade.

The most important flows of roundwood trade inside the UNECE region were the exports from the CIS, mainly from Russia, to the EU/EFTA subregion corresponding to 11.7% of global trade. The exports were mainly going to Finland and Sweden.

Another important flow of industrial roundwood was the 9.3% of global trade from EU/EFTA countries to EU/EFTA countries (intra-trade). The main industrial roundwood flows here were going from Sweden to Norway and from Germany to Austria. The EU/EFTA subregion receives more than 40% of global imports, mainly from CIS, "Other Europe", "non-UNECE" and as intra-trade from the EU/EFTA countries.

Significant exports of roundwood were going from "Other Europe" to the EU/EFTA subregion, corresponding to 8.5% of global industrial roundwood trade. As discussed below, this flow was dominated by exports from Czech Republic to Austria and from Estonia and Latvia to Sweden.

Also of note were the exports from the CIS (10.4%) and from North America (8.8%) to the "non-UNECE" subregion i.e. countries outside the UNECE region. The recipients of this roundwood trade were principally Japan, receiving the lion's share, and China. Around 5.3% of North American "exports" stayed in the same subregion, as intra-trade between Canada and the United States nearly doubled from 1996 to 2000 and now dominates Canadian imports. There are significant year-to-year changes in roundwood trade flows (graph 5.1.3).

The industrial roundwood trade flow from "Other Europe" and from the CIS to the EU/EFTA countries rose steady over the last five years. This could continue over the medium-term, until domestic demand increases.

TABLE 5.1.6

Industrial roundwood trade flows in the UNECE region, average 1996-1999

(% of global trade)

Major importing Countries, in subregions	*Major exporting countries, by subregions*							
	EU/EFTA	*Other Europe*	*CIS*	*North America*	*Non-ECE*	*Other developed*	*Other developing*	*Total*
EU/EFTA	9.3	8.5	11.7	0.4	1.1	8.3	3.8	43.2
Other Europe	0.1	0.0	0.8	0.0	0.0	0.5	0.3	1.8
CIS	0.0	-	-	-	-	0.2	-	0.2
North America	0.0	0.0	0.0	5.3	0.1	4.4	0.1	10.0
Non-ECE	0.2	0.0	10.4	8.1	13.6	0.4	7.8	40.4
Other developed	0.4	0.3	0.5	0.1	0.2	0.7	0.2	2.4
Other developing	0.1	0.1	0.1	0.3	0.2	0.3	0.9	2.1
TOTAL	10.1	9.0	23.5	14.2	15.1	14.9	13.2	100.0

Source: FAO *Yearbook of Forest Products*, 1997-2000.

TABLE 5.1.7

Industrial roundwood trade flows, by major countries, average 1996-1999

(% of global trade)

To:		From:																					
		EU/EFTA							Other Europe					CIS	NA	Non-ECE					Other	Other	
		DEU	FRA	SWE	CHE	FIN	PRT	Total	EST	CZE	LVA	HUN	Total	total RUS	total USA	MAL	NZL	URG	ARG	Total	developed total	developing total	Grand Total
EU/EFTA	Finland	0.2						0.2	0.9		0.2		1.1	8.4				0.1		0.1	0.1		9.8
	Sweden	0.6				0.3		1.0	2.0		1.2		3.1	2.2							1.3	0.1	7.8
	Austria	1.4						1.5		2.2		0.2	2.5	0.1							1.5		5.5
	Italy	0.6	0.6		0.6			1.9				0.3	0.4		0.1						1.6	0.5	4.6
	Norway	0.1		1.6				1.7	0.4				0.5	0.6				0.2	0.1	0.4	0.2		3.4
	Spain		0.3				0.5	0.8										0.3	0.3	0.6	0.5	0.7	2.6
	Belgium/Luxembourg	0.2	0.7					1.0	0.1				0.1	0.1	0.1						1.0	0.3	2.6
	Germany		0.2		0.1	0.1		0.4	0.1	0.6		0.1	0.8	0.3	0.2						0.4	0.2	2.2
	France	0.2			0.2			0.3													0.6	1.1	2.1
	Portugal		0.1					0.1												0.1	0.6	0.8	1.6
	Denmark	0.1						0.2													0.3		0.4
	Netherlands																				0.1	0.1	0.3
	Switzerland	0.1						0.1															0.2
	United Kingdom												0.1										0.2
EU/EFTA total		3.6	2.1	1.6	0.9	0.5	0.5	9.3	3.5	2.9	1.4	0.7	8.5	11.7	0.4			0.6	0.4	1.1	8.3	3.8	43.2
Other Europe	Turkey							0.1						0.6							0.1	0.3	1.2
	Hungary													0.2							0.1		0.3
	Poland																				0.2		0.3
Other Europe total								0.1						0.8							0.5	0.3	1.8
CIS total	Russia																				0.2		0.2
North America	Canada														5.3						1.6		6.9
	United States																0.1			0.1	2.9	0.1	3.1
North America Total															5.3		0.1			0.1	4.4	0.1	10.0
Non-ECE	Japan		0.1			0.1		0.2						7.1	7.1	3.3	2.3			5.6	0.3	2.7	23.0
	China													2.1	0.1	2.8	0.2			3.1		2.9	8.2
	Republic of Korea													1.2	0.8	0.4	3.6			4.0	0.1	0.9	7.1
	India															0.8				0.8		0.5	1.3
	Philippines															0.1				0.1		0.5	0.6
	Malaysia																					0.1	0.1
	Morocco																					0.1	0.1
Non-ECE Total			0.1			0.1		0.2						10.4	8.1	7.5	6.1			13.6	0.4	7.8	40.4
Other developed Total		0.2	0.1					0.4	0.1	0.2			0.3	0.5	0.1		0.2			0.2	0.7	0.2	2.4
Other developing Total			0.1					0.1		0.1			0.1	0.1	0.3		0.1		0.1	0.2	0.3	0.9	2.1
GRAND TOTAL		4.0	2.3	1.7	1.0	0.6	0.5	10.1	3.7	3.1	1.4	0.7	9.0	23.5	14.2	7.5	6.4	0.7	0.5	15.1	14.9	13.2	100

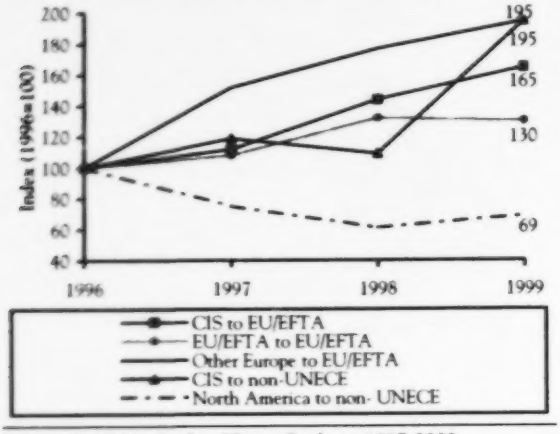
Note: ARG = Argentina, CHE = Switzerland, CZE = Czech Republic, DEU = Germany, EST = Estonia, FIN = Finland, FRA = France, HUN = Hungary, LVA = Latvia, MAL = Malaysia, NA=North America, NZL = New Zealand, PRT = Portugal, RUS = Russian Federation, SWE = Sweden, URG = Uruguay, USA = United States

Grey areas correspond to table 5.1.6

Sources: FAO *Yearbook of Forest Products*, 1997-2000.

GRAPH 5.1.3

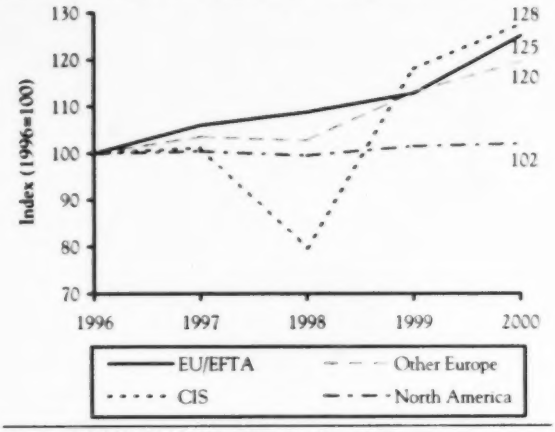
Major industrial roundwood trade flows in the UNECE region, 1996-1999



Source: FAO *Yearbooks of Forest Products*, 1997-2000

GRAPH 5.1.4

Apparent consumption of roundwood in the UNECE region, 1996-2000



Source: UNECE/FAO TIMBER database, 2001.

The most rapid increase is in the flow from CIS to the "non-UNECE" subregion. Between 1998 and 1999 the traded roundwood volumes nearly doubled. These developments are certainly related to the decrease in exports from North America to the "non-UNECE" countries, losing market share to "Other Europe" and CIS exporters.

5.1.3 *Apparent consumption*

Apparent consumption of roundwood in the UNECE region increased by 4.4% between 1999 and 2000 and reached a volume of 1.27 billion m^3 (graph 5.1.4). Consumption increased 60% from 1998 through 2000 in the CIS. However, consumption fell more than 20% from 1996 to 1998, because of weak domestic demand and management problems in harvesting and transport of roundwood. In the past, little roundwood export revenue was reinvested into the development of domestic production capacities. Since 1998 the picture has changed radically.

In "Other Europe" and EU/EFTA subregions, increasing production, exports and imports have led also to a steady increase in consumption. Between 1999 and 2000 roundwood consumption increased in the "Other Europe" subregions by 5.8% and in the EU/EFTA subregion by 11.0% respectively. Among all the subregions, the greatest increase in 2000 was in EU/EFTA. The huge volumes of roundwood, arising from the 1999 storm damages led to a better use of sawmilling capacities, leading in some cases to stocking of roundwood and sawnwood at mills.

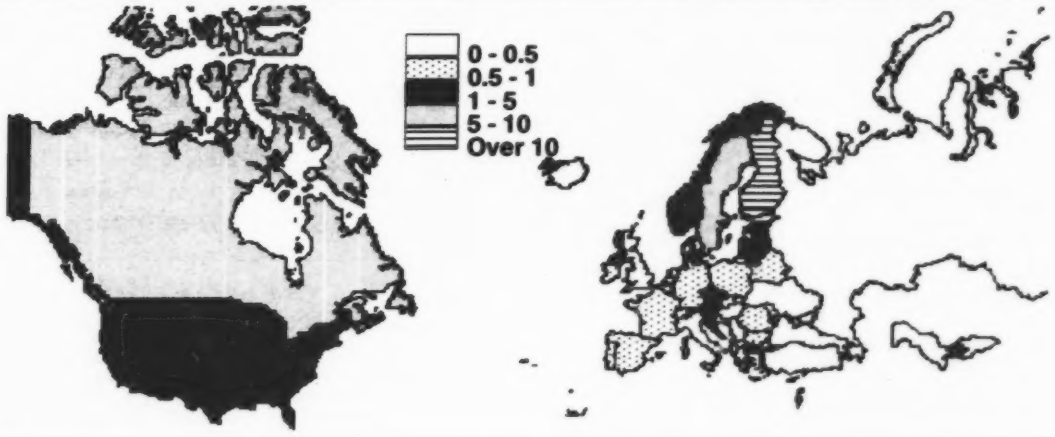
The highest increase in absolute terms was also for the EU/EFTA subregion, where the average growth of roundwood consumption from 1996 to 2000 corresponded to 15.8 million m^3 annually, whereas in the CIS the same figure amounted to 7.7 million m^3, in "Other Europe" to 4.6 million m^3 and in North America to 3.4 million m^3.

Apparent consumption of roundwood reached 681 million m^3 in 2000 in North America. While North America consumed more roundwood than other subregions, its growth at 0.5% in 2000 was the slowest of the four regions.

Consumption per capita is highest in Finland and Sweden in the UNECE region. This is related to the high development of the wood processing industry compared to some other branches of the national economy. Among the analysed subregions, North America has the highest consumption per capita, with 6.2 m^3 in Canada and 1.8 m^3 in the United States. For the EU/EFTA subregion, roundwood consumption per capita amounts to 0.87 m^3, followed by "Other Europe" with 0.55 m^3 and the CIS with 0.48 m^3 per capita. Figure 5.1.1 shows the consumption per capita for the UNECE countries in a map.

FIGURE 5.1.1

Apparent consumption of roundwood in the UNECE region, m³/capita in 2000



Source: UNECE/FAO TIMBER database, 2001.

5.2 Developments in EU/EFTA

Roundwood production in the EU/EFTA subregion increased between 1999 and 2000 by nearly 12% and reached a level of 307 million m³. The main reason for this increase was the windthrow in December 1999, which affected mainly France, Switzerland, Denmark and also Germany (listed in order of magnitude of loss as a percentage of annual removals). The volumes of windthrow in these four countries were significant compared with their average level of removals. Statistics showed a huge increase of roundwood production for these countries. While the reported volume of windthrow for France was 140 million m³, which would correspond to more than three times the average removals, roundwood production statistics for 2000 were for 50 million m³, only 17% higher then removals in 1999.

As a result of concerted action by Governments and private industry, huge volumes of roundwood as well as sawnwood have been stored in order to stabilize the roundwood markets. For example, in Germany, government support for storm-hit forests included investment aids for the installation of long-term storage. The total volume of the subsidy programme was calculated at $110 million, mainly financed by the state Governments.

Despite the problem of reduced quality of wood from damaged forest after the windthrow, log production in 2000 was notably higher (15.4%) than that for pulpwood (10.2%). Certainly as a result of roundwood oversupply in 2000, unit prices dropped for exports by about 30% and for imports by 20% (table 5.2.1).

The EU/EFTA subregion, with 62.6 million m³ of roundwood imports in 2000, remains the largest importer and at the same time, with 38.3 million m³ of roundwood, the only net importer of UNECE subregions. The most important importers of industrial roundwood were Finland and Sweden in 2000, importing about 11.9 and 10.0 million m³ respectively, and getting most of these volumes from Russia and the Baltic countries.

Expanding exports from "Other Europe" and CIS countries, mainly going to western Europe, changed traditional trade flows. Over the last six years, Germany's net exports to other EU/EFTA countries steadily declined, while its net imports from the CIS increased rapidly, replacing net imports from the "Other Europe" subregion. In 2000 Germany was even a small net exporter to the "Other Europe" subregion (table 5.2.2).

The huge oversupply of roundwood from the storms led to lower prices. Although Germany, France and Sweden are the traditional roundwood exporting countries, after the storm they enlarged their exports. Spain, Austria, Italy and Belgium augmented their normal roundwood imports by huge volumes, but not Finland. As a consequence the subregion as whole increased net imports between 1999 and 2000 by 5.6%.

Because of the increasing production and net imports, roundwood apparent consumption in the EU/EFTA region increased by 11.0% and reached 345 million m³ in 2000. Consumption is increasing constantly with an average growth of 15.8 million m³ annually.

TABLE 5.2.1

Export and import roundwood unit prices in the UNECE region, 1996-2000

($/m³)

	1996	1997	1998	1999	2000	Average growth rate	% change 1999 to 2000
EXPORTS							
EU/EFTA	52	44	75	74	52	3.0	-29.6
Other Europe	45	38	47	48	42	0.3	-13.7
CIS	53	50	44	41	40	-3.4	-3.3
North America	169	144	105	115	119	-13.0	3.4
TOTAL	80	65	65	63	57	-4.9	-10.5
IMPORTS							
EU/EFTA	78	73	70	66	53	-5.7	-20.1
Other Europe	94	73	81	62	56	-8.6	-9.8
CIS	26	26	33	25	29	0.5	14.1
North America	50	54	59	67	76	6.5	13.8
TOTAL	74	70	69	66	56	-4.1	-15.6

Source: UNECE/FAO TIMBER database, 2001.

TABLE 5.2.2

German roundwood net trade, 1995-2000

(1,000 m³)

	1995	1996	1997	1998	1999	2000
EU/EFTA	2,926	1,701	2,131	2,074	1,582	1,142
Other Europe	-282	-336	-245	-101	-216	74
CIS	-14	-39	-63	-136	-522	-623
Non-UNECE	39	44	41	14	-4	15
TOTAL	2,669	1,369	1,863	1,850	840	609

Note: The figures from ZMP do not exactly match those in the UNECE/FAO TIMBER and FAO databases.

Source: Zentrale Markt - und Preisberichtstelle fur Erzeugnisse der Land-, Forst - und Ernährungswirtschaft GmbH, 2001.

The EU/EFTA subregion also imported about 12.3 million m³ of wood residues, chips and particles and exported 8.3 million m³. Thus, unlike the other UNECE subregions, the EU/EFTA subregion is also a net importer of residues, chips and particles (table 5.1.5).

5.3 Developments in "Other Europe"

Most of the countries in central and eastern Europe are on their way to a market-oriented policy framework. In some countries the transition process includes the privatization or restitution of forests. For example in the Baltic region it is expected that about 50-60% of the future roundwood supply will come from private forest owners. These new "competitors" are offering lower prices (Lithuanian Centre of Forest Economic Information Bulletin, 2001).

Roundwood production in "Other Europe" countries has been steadily increasing at a rapid rate during the last five years with an average of about 5.6 million m³ per year. In 2000 removals increased by 6.2 million m³, which corresponds to a growth of 5.3%. Most of this current growth was from Poland, Latvia and Estonia (in order of magnitude). Roundwood production also increased rapidly in Bulgaria (9.5%) and the former Yugoslav Republic of Macedonia (28.2%).

Since 1996 Poland has been the biggest supplier in this subregion with about 25.6 million m³ in 2000. The Directorate of State Forests owns 70% of the total resources of Poland and dominates the market by its price policy. At the same time the sawmilling industry consists of small, not well-organized enterprises (USDA Foreign Agricultural Service, 2001).

Log production in the "Other Europe" subregion is increasing faster than the UNECE region average, especially in Latvia, where the growth between 1999 and 2000 amounted to 1.6 million m³ and 23.6%.

With 11.2 million m³ of roundwood in 2000, this subregion is the second net exporter of the UNECE region, after the CIS subregion. Expanding production is

the background for a fast increase in exports, by 8.1% between 1999 and 2000, leading to a volume of 17.3 million m^3. In 1999 large volumes of industrial roundwood went from Estonia (1.9 million m^3) and Latvia (2.6 million m^3) to Sweden and from the Czech Republic to Austria (1.9 million m^3).

Total roundwood imports by countries of the "Other Europe" subregion also increased sharply by 23.1% in 2000, reaching more than 6 million m^3.

Exports of wood residues, chips and particles increased by 3.4% between 1999 and 2000, reaching 2.6 million m^3. After North America the "Other Europe" subregion is the second important net exporter of these products, with about 2.0 million m^3.

Taking the above into consideration, the "Other Europe" subregion is still the weakest roundwood consumer in UNECE region with a 5.8% growth in consumption between 1999 and 2000, higher than the average in the UNECE region.

5.4 Developments in the CIS

In comparison to the "Other Europe" subregion, most of the CIS countries are only in the beginning of a stabilization of the policy framework, so the development of roundwood markets has been characterized by high volatility. The totals for the CIS subregion were dominated by those of the Russian Federation, by far the largest producer and consumer.

Roundwood production in the subregion as a whole decreased through 1998, to approximately 100 million m^3. However, from 1998, removals increased by nearly 60% to 2000, and even more in Russia by 66%, reaching 170 million m^3 roundwood in the subregion as a whole.

The future potential in the CIS region is huge. Timber harvest volume in the Russian Federation in the late 1980s was more then 300 million m^3, whereas the potential for sustainable forest use was even higher at about 400 million m^3 roundwood annually. In 2000, Russia reached 158.1 million m^3 removals, which was only about half of the volumes cut during the 1980s. However, most of Russia's timber resources are located in remote areas with weak infrastructure and would need investments before increasing production significantly (reported by Professor Eduard L. Akim, 2001). According to the Ministry of Economics, the country could cut up to 500 million m^3 a year, without any adverse effect on forest yield or the environment (Worldwidewood.Com, 2001).

Large-scale leasing of forestland and the auctioning of timber stands are currently increasing output. The Russian Forestry Service reported that in 2000, over 2,500 plots with a total area of 70 million hectares were leased. In addition, some 30 million m^3 of standing timber was sold at auctions during 2000. Rates differ by districts within provinces, as well as by wood quality and the distance to the markets. (USDA Foreign Agricultural Service, 2001).

About one third of removals are logs, whose production only between 1999 and 2000 increased by 3.2 million m^3. Pulpwood production increased extremely fast, 18.2% between 1999 and 2000, reaching 46.4 million m^3.

The current data may be underestimated because of unrecorded removals (e.g. from illegal fellings). The volumes for such cuttings range, according to various publications, from 2 to 20 million m^3 roundwood, which would correspond to up to 15% of the reported removals.

CIS roundwood exports were increasing rapidly and reached 32.3 million m^3 in 2000. Between 1999 and 2000 the exports grew by 12.7% or roughly 3.8 million m^3. Russia accounted for this increase mainly, with exports growing by 11.1%. Exports of wood residues, chips and particles grew considerably, by 8.5% between 1999 and 2000.

In 1999 more than the half of the exports of industrial roundwood from the Russian Federation went to the EU/EFTA subregion, including about 8.7 million m^3 to Finland and 2.1 million m^3 to Sweden. Huge volumes of industrial roundwood were exported from the UNECE region, for example to Japan (7.0 million m^3) and to China (5.0 million m^3). The areas closest to export markets, i.e. northwestern and far eastern areas of Russia, have greater export market opportunities. In comparison to EU/EFTA and "Other Europe" the imports of the CIS subregion, with about 0.5 million m^3, were still minor. Between 1996 and 1999 significant volumes of industrial roundwood were traded from Russia to Turkey.

Consumption of roundwood decreased through 1998, owing to the transition process and the mid-1998 economic crises. Since 1998 consumption has grown by 51.4 million m^3 or 60%. In other countries of this subregion, for example Belarus and Ukraine, consumption is still decreasing, whereas at the same time net exports of roundwood are increasing. One of the main needs is to return revenues from exports of resources back to the general economy and for renovation of obsolete machinery in the forest sector.

5.5 Developments in North America

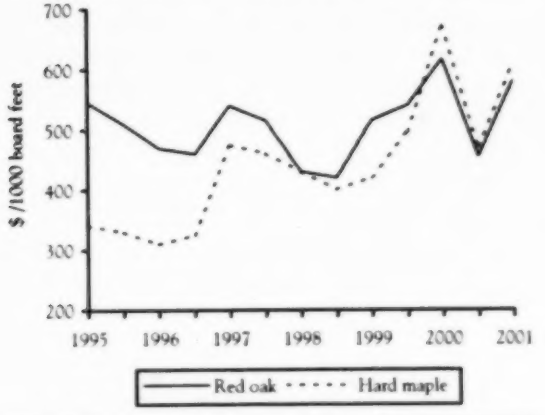
As in the EU/EFTA subregion, roundwood production in North America is relatively stable. In 2000, 688 million m^3 of roundwood was produced, of which nearly 400 million m^3 was logs and 200 million m^3 was pulpwood. The rest was other industrial roundwood.

Roughly 500 million m^3 of total removals were from the United States.

As reported last year, the management in United States National Forests in the Pacific Northwest is changing in the direction of ecosystem management, leading to a decrease in roundwood supply from these forests. Despite the fact that during 2000 the Forest Service timber sales went down, total cuttings in the United States are still increasing, between 1999 and 2000 by 2.8 million m^3 or 0.6%. The roundwood supply is shifting to private forests, mainly in the southeastern region of the country. This could be a reason for temporarily fast-rising United States sawlog prices (graph 5.5.1).

GRAPH 5.5.1

United States hardwood log prices, 1995-2001



Note: Prices paid for red oak and hard maple, grade 1 logs, delivered to sawmills, Doyle log scale.

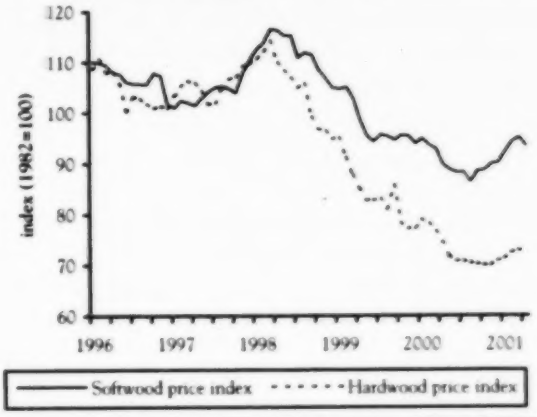
Source: *Ohio Timber Prices*, Ohio Division of Forestry, 2001.

Pulpwood production in United States was increasing rapidly through 1998, by an average annual growth rate of 5.9 million m^3, whereas the production of wood fuel decreased by 4.9 million m^3 per year. Pulpwood prices in North America are influenced by global pulp and paper markets, but are more directly a function of local supply conditions (USDA Forest Products Laboratory, 2001). Pulpwood prices were falling through mid-2000, but then rose again into 2001 (graph 5.5.2).

The average pulpwood price index trends for the United States are largely determined by trends in pulpwood supply conditions in the southern United States, where the largest share of pulpwood is produced and consumed in the United States. Available supplies of pulpwood have generally continued to improve with slower than anticipated growth in woodpulp capacity and

GRAPH 5.5.2

United States average price indexes for delivered pulpwood, 1996-2001



Source: United States Bureau of Labor Statistics, 2001.

expansion of softwood pulpwood supply from pine plantations in the South.

The recent downward price trends for pulpwood and recovered paper raw materials in the United States reflect in part the weakness of recent years in United States exports of pulp, paper and paperboard products, owing in part to the exceptionally strong United States dollar value. Should the dollar value decline in the near future, United States producers will be positioned competitively with relatively low fibre raw material input prices (reported by Dr. Peter Ince, 2001)

Logs exports to Japan from North America decreased significantly from 7.3 million m^3 in 1995 to 4.8 million m^3 in 2000 (Japan Wood-Products Information and Research Center, 2001). Nonetheless, total roundwood exports increased by 6.9% for North America as a whole. Roundwood exports are increasing, especially in Canada, where the growth rate between 1999 and 2000 corresponded to 32.8%. Imports have increased in the United States by an average growth rate of 232,000 m^3 annually since 1996. The position of North America as a roundwood net exporter was decreasing through 1997 to a level of 4.3 million m^3. But since that time net exports increased and amounted to 6.9 million m^3 in 2000, which was still below the levels of the 1980s and 1990s when Canada and United States dominated trade to Japan.

The main source of Canadian imports are exports from the United States with 5.7 million m^3. In 1999 the United States exported 4.6 million m^3 of industrial roundwood to Japan. More than the half of North American industrial roundwood imports and about one third of the exports were intra-trade between the United States and Canada. Therefore, apparent consumption is

slightly increasing by 3.3 million m^3 during 1996 to 2000 and by 0.5% between 1999 and 2000.

North America is a net exporter of wood residues, chips and particles, with about 4.8 million m^3 in 2000. While chips and particles trade is decreasing for the United States, Canadian imports rose in 2000, but not back to 1998 levels.

5.6 Conclusions

Production and consumption of roundwood in the UNECE region reached 1.3 billion m^3 in 2000, increasing by 4.6%, mainly because of the storm damage in Europe. These levels are still well below the supply potential of the forests in some countries. Between 1999 and 2000, exports and imports increased by roughly 18%, reaching 90 million m^3 and 77 million m^3 respectively.

The extensive windthrow from the December 1999 storms led to a roundwood oversupply in Europe in 2000. France, Switzerland, Denmark and Germany were mainly affected. Roundwood production and exports accelerated in Europe, leading to a decrease in prices. Export unit values dropped in the EU/EFTA subregion from \$72/m^3 in 1999 to \$52/m^3 in 2000.

Since 1996 exports of wood raw material from CIS as well as from central and eastern European countries to western Europe have increased rapidly, whereas the total exports climbed from 1999 to 2000 by 12.7% and 8.1% respectively. These exports influence the traditional roundwood trade flows in other parts of the UNECE region and outside of it. Roundwood production and consumption in the CIS decreased from the beginning of market reforms through 1998. Since that time there has been a significant increase through 2000, by roughly 60%. Incomes from expansion of roundwood exports in CIS and other European countries are increasingly used to improve obsolete technical equipment, which leads to increasing productivity and medium-term domestic purchasing power.

While the United States lost some market share in Japan, industrial roundwood trade between the United States and Canada is increasing. Production and consumption of industrial roundwood in North America slightly increased.

Chapter 6
Sawn softwood – consumption, production and trade[1]

Highlights

- In 2000 in the UNECE region, production of sawn softwood reached a new high of 264 million m^3, a 1.6% increase over 1999.
- Nordic countries' production and exports were at record highs in 2000, and shipments of further processed sawn softwood products are increasing.
- Nordic countries' and Austria continue to see growth in exports of sawn softwood outside of the EU/EFTA region, especially to Japan.
- Growth in exports from central and eastern Europe, 13% from 1999 to 2000, is considerably higher than the export growth rate in the EU/EFTA subregion of Europe of 4%.
- Sawn softwood exports from Canada to the United States made record highs in 1999 and 2000, representing roughly 35% of total United States consumption.
- Canadian exports of further processed sawnwood products, including wood furniture, reached record levels in 2000.
- United States exports of sawn softwood continue near their decade lows of 1998, at less than 3 million m^3, due to increased domestic consumption and reduced production.
- United States imports from South America and Europe are at record levels.
- Expiration of the Canada – United States Softwood Lumber Agreement in March 2001 has created much apprehension for Canadian producers, leading to a drop in shipments and higher prices.
- While Japanese import volumes of sawn softwood remain considerably below the 1997 peak of over 10 million m^3, Japan remains an important market for supplier regions around the globe. Canada has maintained market share in Japan, while the United States lost market share, and Sweden, Finland and Austria enjoyed spectacular gains.
- Sawn softwood production and trade increased sharply to record levels in France, Germany and Switzerland following the December 1999 windstorms and sawnwood prices weakened.

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Secretariat introduction

For the first time the authors of this chapter come from outside of the secretariat, thus giving a fresh look to the *Review*'s sawn softwood analysis. The chapter maintains the traditional statistical tables, based on UNECE and FAO statistics, and subregional analysis. Drs. Chris Gaston and Rob Kozak are thanked for their assessment of the market developments in 2000 and 2001. They come from Forintek Canada Corporation and the University of British Columbia, respectively, where they are marketing specialists who are up to date on worldwide sawn softwood market trends and intelligence.

Analysing Europe by "EU/EFTA" and "Other Europe" (principally central and eastern European countries), in line with the same break out in other chapters, the authors divulge the dynamics of the rebounding central and eastern European sawnwood markets, contrasted to the much larger western European markets, with their slower growth.

6.1 Introduction

Globally, the production of sawn softwood has displayed an upward trend, reaching an all-time high of over 320 million cubic metres in 1999 (FAO, 2001). The UNECE region, namely Europe, CIS and North America, manufactures more than 80% of this global total (table 6.1.1). Consumption rose to record levels in the EU/EFTA subregion, as well as in the "Other Europe" subregion, but fell by 1.2% in North America and by 2.0% in the Russian Federation (graph 6.1.1).

Overall, the UNECE region has displayed positive growth in the last year. However, production in North America is down more than 1% after an exceptionally strong 1999. Conversely, production in Europe is up more than 5% for the same period, with the strongest growth taking place in the EU/EFTA region of Europe. In addition, imports and exports have increased across the board in each of the UNECE regions – with the largest

TABLE 6.1.1

Sawn softwood balance in UNECE region, 1996-2000

(Million m³)

	1996	*1997*	*1998*	*1999*	*2000*	*Timber Committee estimate for 2001* [1]
EU/EFTA						
Production	63.67	67.75	69.10	71.21	75.12	75.47
Imports	26.28	29.80	35.74	33.85	36.10	36.42
Exports	26.21	28.10	29.05	29.87	31.93	32.38
Net trade	-0.07	-1.70	-6.69	-3.98	-4.17	-4.04
Apparent consumption	63.74	69.44	75.79	75.18	79.28	79.51
OTHER EUROPE						
Production	13.60	15.36	16.52	17.19	18.69	19.05
Imports	2.08	2.15	2.38	2.87	3.39	3.51
Exports	5.79	7.42	7.80	8.84	10.00	10.27
Net trade	3.71	5.27	5.41	5.97	6.61	6.77
Apparent consumption	9.89	10.09	11.11	11.22	12.08	12.28
RUSSIAN FEDERATION						
Production	17.53	16.68	15.61	16.64	17.67	18.52
Imports	0.01	0.33	0.01	0.00	0.00	0.00
Exports	4.35	4.78	4.63	6.13	7.37	8.19
Net trade	4.34	4.45	4.63	6.12	7.37	8.18
Apparent consumption	13.19	12.22	10.98	10.51	10.30	10.34
NORTH AMERICA						
Production	140.24	145.58	145.92	154.79	152.75	151.72
Imports	43.75	43.32	44.32	45.55	46.18	47.42
Exports	53.55	51.55	50.06	51.72	52.15	50.99
Net trade	9.79	8.23	5.74	6.17	5.97	3.57
Apparent consumption	130.45	137.35	140.18	148.61	146.78	148.14

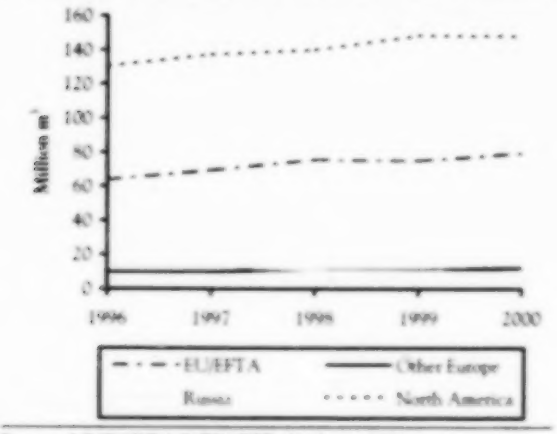
[1] The Timber Committee's forecast trend for 2000 to 2001, made at the October 2000 session, was applied to the 2000 figure.

Source: UNECE/FAO TIMBER database, 2001.

gains seen in the "Other Europe" category (imports) and the CIS countries[2] (exports).

GRAPH 6.1.1

Consumption of sawn softwood, 1996-2000



Source: UNECE/FAO TIMBER database, 2001.

This chapter will look at production, consumption and trade of sawn softwood. As in previous years, information presented here is from the UNECE/FAO TIMBER database. All of the data presented here is for the year 2000, with one exception. At the time of writing this chapter, trade by direction data for 2000 was not available and 1999 data was used in its place. Further information from industry associations, trade journals, academic publications, consultants' reports and other official sources was used to supplement the existing data, and is cited accordingly and referenced at the end of the chapter.

6.2 Production and trade

Trade of sawn softwood is discussed in three sections, based on the three major softwood producing and consuming regions: Europe, North America and Japan. For each region, major trade patterns are considered based on data from the UNECE/FAO TIMBER database and other sources. In addition, other trade issues are discussed, most notably the emerging trend in the production, trade and consumption of plantation-grown sawn softwood.

6.2.1 *Europe*

Regional highlights for European sawn softwood production and trade are reported below. Much of the information comes from the European Sawn Softwood Conference 2000 (London, England), reported in *Timber and Wood Products (TTJ)* and *EUWID (Europäischer Wirtschaftsdienst)*. In general, European production of sawn softwood, especially high quality sawnwood, is on an upswing (table 6.2.1). This is due to several factors including, but not limited to: positive economic conditions within Europe; an expanding domestic construction market; exporters' favourable exchange rates for currencies pegged to the euro; the unusual availability of windthrown logs resulting from the hurricanes of December 1999; and market expansion beyond intra European trade.

6.2.2 *Nordic countries*

Sawn softwood production in Nordic Europe for 2000 is up across the board. Finland saw a record production level of over 13 million cubic metres, while Sweden's production returned to 1998 levels after a drop in 1999. Norway has also seen some slight increases in output, most of which was used domestically, or sold within the Nordic countries and central Europe.

Finland and Sweden exported record levels of sawnwood in 2000 (table 6.2.2). A growing proportion of Swedish and Finnish production is being sold into markets outside of Europe. Most notably, Japan continues to be a key export destination and the United States is growing in importance. Finnish and Swedish 2000 exports to Japan grew by approximately 58% and 8% over 1999, respectively. Interestingly, Swedish exports to the United States saw impressive gains, doubling in volume to more than 140,000 cubic metres. This emerging trade pattern is largely being driven by the exchange rate between the weaker Swedish krona and the euro, leading to intense competition from Baltic countries and a loss of share within European markets (graphs of exchange rates may be found in the economic overview chapter). The high production of the Nordic countries, plus the increased production volumes from other EU/EFTA countries, other European countries and the CIS, combined with softening demand, has led to weaker prices since mid-2000 (graph 6.2.1).

Most of the sawnwood being shipped from the Nordic countries to the United States and Japan is high quality whitewood (spruce and fir), which speaks to two emerging trends in Nordic Europe. First, there is a movement away from commodity goods to more downstream processing and value-addition. Planed and processed lumber is displacing rough sawnwood and increases are noted in the production of value-added goods, for example solid pine flooring by Swedish sawmills and building systems. Second, as exports of high quality lumber products from Nordic countries to international markets increase, there is a growing need for Nordic Europe to import raw logs (mostly from (and

2 The CIS countries reporting sawn softwood statistics included Republic of Belarus, Moldova and the Russian Federation.

TABLE 6.2.1

Production of sawn softwood in the UNECE region, 1997-2000

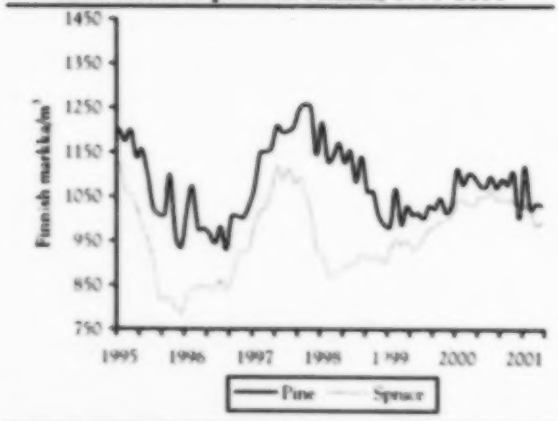
(1,000 m³)

	1997	1998	1999	2000	Change 1999 to 2000	
					Volume	%
EU/EFTA	67,745	69,097	71,205	75,116	3,911	5.5
of which:						
Germany	13,682	13,807	14,537	15,005	468	3.2
Sweden	15,419	14,874	14,608	14,839	231	1.6
Finland	11,360	12,240	12,708	13,320	612	4.8
Austria	8,254	8,534	9,400	10,150	750	8.0
France	6,800	7,197	7,257	8,708	1,451	20.0
OTHER EUROPE	15,357	16,523	17,192	18,695	1,503	8.7
of which:						
Czech Republic	3,100	3,100	3,251	3,782	531	16.3
Latvia	2,550	2,800	3,047	3,450	403	13.2
Poland	3,450	3,538	3,349	3,350	1	0.0
Turkey	2,032	2,101	2,280	2,542	262	11.5
Romania	1,115	1,456	1,845	2,077	232	12.5
Estonia	656	780	1,100	1,050	-50	-4.5
Lithuania	1,130	900	850	1,000	150	17.6
CIS	17,751	17,133	18,204	19,310	1,105	6.1
of which:						
Russian Federation	16,675	15,610	16,635	17,673	1,038	6.2
NORTH AMERICA	145,578	145,920	154,786	152,745	-2,041	-1.3
Canada	63,764	64,082	68,235	68,557	322	0.5
United States	81,814	81,838	86,551	84,188	-2,363	-2.7

Source: UNECE/FAO TIMBER database, 2001

GRAPH 6.2.1

Sawn softwood prices in Finland, 1995-2001



Source: Metla/o, Finnish Forest Research Institute, 2001.

through) the Baltic countries and the Russian Federation) in order to feed European demand for sawn softwood.

6.2.3 *Baltic countries*

While Latvian and Lithuanian production increased by over 13% and 18% in 2000, respectively, Estonian production decreased by 4.5%. This trend may continue as Estonia currently has overcapacity of sawmills and Estonian marketing specialists expect a rationalization in late 2002. Currently, production is based both on domestic and Russian logs. As the Estonian kroon is indirectly linked to the euro, and Russian logs are exported in dollar prices, Estonian sawmillers face rising raw material costs, as the euro remains weak. The combination of low sawnwood prices with high log costs leads to a precarious state of affairs. Some smaller, less-efficient mills have been sold to larger, joint-venture companies. Nevertheless, exports were up again by 11.9% in 2000, which, in combination with the reduced production, meant that apparent consumption fell by almost 22%.

TABLE 6.2.2

Exports and imports of sawn softwood in the UNECE Region, 1997-2000
(1,000 m³)

	1997	1998	1999	2000	Change 1999 to 2000	
					Volume	%
EXPORTS						
EU/EFTA	28,098	29,047	29,871	31,933	2,062	6.9
of which:						
Sweden	10,902	10,975	11,060	11,188	128	1.2
Finland	7,509	8,204	8,269	8,405	136	1.6
Austria	4,838	4,752	5,652	6,195	543	9.6
Germany	1,895	2,223	1,671	2,478	807	48.3
Belgium	...	...	602	808	206	34.2
France	469	511	529 E	722 E	193	36.5
Other Europe	7,421	7,796	8,840	10,004	1,165	13.2
of which:						
Latvia	2,060	2,250	2,447	2,635	188	7.7
Czech Republic	1,397	1,231	1,480	1,701	221	14.9
Romania	917	1,210	1,494	1,677	182	12.2
Slovakia	285	735	681	1,006	325	47.7
Estonia	597	690	816	912	97	11.9
Poland	747	705	722	785	63	8.7
Lithuania	871	501	517	619	102	19.7
CIS	5,045	4,898	6,699	8,592	1,893	28.3
of which:						
Russian Federation	4,780	4,632	6,125	7,373	1,248	20.4
North America	51,550	50,063	51,722	52,149	427	0.8
Canada	47,664	47,177	48,386	48,928	542	1.1
United States	3,886	2,886	3,336	3,221	-115	-3.4
IMPORTS						
EU/EFTA	29,798	35,739	33,847	36,101	2,254	6.7
of which:						
United Kingdom	6,491	6,490	6,604	7,308	704	10.7
Italy	5,145	5,274 P	5,551	6,304	753	13.6
Germany	5,280	5,301	4,705	4,610	-95	-2.0
Denmark	2,133	4,046	4,569	4,569 R	0	0.0
France	1,960	2,237	2,446 E	2,670 E	224	9.2
Netherlands	2,889	2,923	2,911	2,559	-352	-12.1
Other Europe	2,152	2,384	2,868	3,390	522	18.2
of which:						
Hungary	672	659	733	977	243	33.2
Yugoslavia	275	275 P	412 P	412 R	0	0.0
Israel	369	369 P	383 E	383 R	0	0.0
Lithuania	127	189	237	260	23	9.8
Turkey	117	188	207	235	28	13.5
Czech Republic	138	158	169	219	50	29.6
CIS	534	211	659	974	314	47.7
of which:						
Russian Federation	329	6	4	3	-1	-25.0
North America	43,318	44,322	45,550	46,179	629	1.4
Canada	804	618	743	769	26	3.5
United States	42,514	43,704	44,807	45,410	603	1.3

Source: UNECE/FAO TIMBER database, 2001.

Latvia is also facing falling lumber prices and unfavourable exchange rates. Nevertheless, exports and production were up again, by 7.7% and 13.2% based on volume respectively. However, in early 2001, some shipments were either running late or not being delivered owing to a sluggish market demand.

The situation in Lithuania is slightly more optimistic. Exports for sawn softwood have increased by 20%, resulting in the highest levels since 1998. Most of this production is shipped to Germany, while North America remains Lithuania's second biggest export destination, accounting for approximately 15% of the sawnwood exports and displacing the United Kingdom (where exports have dropped by over 20%).

6.2.4 *EU/EFTA (excluding the Nordic countries)*

In 2000, production of sawn softwood in EU/EFTA has increased in most countries, with the notable exception of the United Kingdom, which saw slight decreases owing largely to a slowing of the economy. Production in the United Kingdom is expected to improve in the coming year and markets for German, Austrian, French, Spanish and Swiss producers are all expected to remain strong. With the exception of Austria, which has a significant and growing market in Japan, buyers of sawn softwood tend to be within Europe (either traded between countries or used domestically).

It is interesting to note that western Europe had success in 2000 and early 2001 in finding markets for windthrown timber – this has not become an over-supply problem as some had predicted. The countries hardest hit, i.e. France, Germany and Switzerland, all increased production to record levels, by 20.0%, 3.2% and 9.6% respectively. Fortunately the sudden rise in sawnwood supply coincided with an increased sawnwood demand in Europe owing to construction increases in many European countries in 2000.

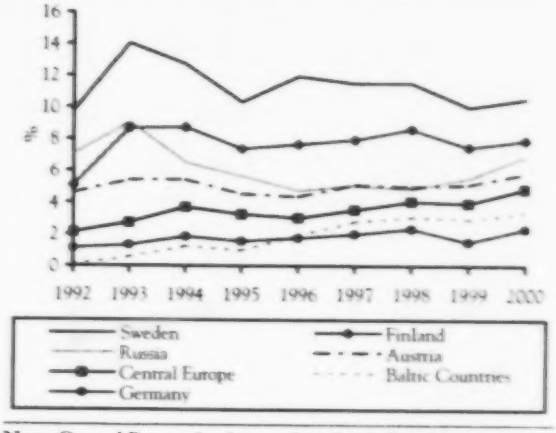
Strong growth in sawn softwood output is largely due to an increasing movement towards self-sufficiency on the part of European producers. This point is made all the more salient as a result of Europe's strengthening economy and growing construction volumes. In fact, demand for sawn softwood is so high that France is now producing 40,000 cubic metres of plantation Douglas-fir per year. Of note is the continued reliance on Nordic countries' exports, and to a lesser extent, North America, to meet its construction and value-added needs, and also the growing importance of Chile as a supplier of sawn softwood.

6.2.5 *Other Europe*

With approximately one quarter of the sawn softwood [illegible] the Czech Republic, Poland, Romania and Slovakia – are accelerating out of the transition period and re-establishing this important European sawnwood producing region. Output levels in these four countries far exceed those of the Baltics. That said, each of these countries exports less than Latvia alone. However, at between 0.8 and 1.7 million m^3 of sawn softwood exported in 2000, each country is an important wood products supplier, behind only Austria, Finland, Sweden and the Baltic countries (graph 6.2.2). Production levels in eastern Europe are on the rise, with the biggest increases seen in the Czech Republic (16%) and Romania (13%). Exports, primarily traded within Europe for the time being, are displaying similar trends and are growing at a more rapid rate than the EU/EFTA region of Europe (13% increase from 1999 to 2000 as compared to 6.9%, respectively). Of particular note is Slovakia, whose sawn softwood export levels were reported to have increased by nearly 50% in 2000 to over 1 million cubic metres. Although most of these countries had rises in their domestic consumption levels, development of their sawmilling sector is intrinsically linked to export market growth.

GRAPH 6.2.2

Share of total European export market of sawn softwood, 1992-2000



Note: Central Europe for this graph is Czech Republic, Poland, Romania and Slovakia
Source: UNECE/FAO TIMBER database, 2001.

6.2.6 *CIS countries*

The Russian Federation increased both its sawn softwood output and its exports by more than 1 million cubic metres in 2000 over 1999 levels. Russia is by far the most important lumber producer in the CIS, with the majority of its exports being traded in Europe and other

maintain significant market shares outside of Europe, most notably in Egypt and Japan.

Demand for Russian sawn softwood is expected to remain strong, especially in places like France and Belgium, where prices of CIS lumber are relatively low. However, further growth of the Russian forest products sector is expected to be slow. It should be noted that the current sawmilling capacity in Russia is on the order of 60 million cubic metres and is grossly underutilized for a variety of technical and economic reasons, not least of which is that many Russian sawmills are simply not profitable or are heavily leveraged. That said, if output ever approaches capacity, this would have a significant global impact on production, consumption and trade patterns. Like the central and eastern European countries, Russia is dependent on export market development. Apparent consumption of sawn softwood continued falling in 2000, by 2%, a slower decline than previous years. As production increased by over 1 million m^3, apparently the majority of that sawnwood was exported.

6.3 Intra Europe trade

Over 71% of all European imports (approximately 28.3 million cubic metres) of sawn softwood originated within Europe in 1999[3], with the major exporting countries being Sweden, Finland and Austria, followed by Russia, Latvia and Germany. The major importing countries were the United Kingdom, Italy and Germany (table 6.3.1, inner box). Not surprisingly, intra European trade flows are geographically based with much of the Nordic shipments going to the northern part of Europe (United Kingdom, Germany, Netherlands and Denmark) and Austrian shipments finding homes within close proximity (Italy and Germany).

Nordic country shipments to Europe are notable in that, increasingly, less indigenous fibre is being used to serve European markets. Nordic countries' wood is typically shipped to foreign markets like Japan (over 1 million cubic metres in 1999) in the form of higher grade lumber products to service the growing wooden home sector. This has a 'ripple effect' on the European log market as the Nordic countries must meet their increased demand by procuring roundwood from places such as the Baltic countries. These logs, earmarked for domestic European consumption, are processed in Nordic sawmills and sold throughout Europe, with the largest market gains being made in the United Kingdom. It is interesting to note that the Baltic countries, in turn, procure raw logs from the Russian Federation. The Russian Federation, and Latvia to a lesser degree, are active exporters to Europe, with the largest share of sawn softwood shipments going to the United Kingdom (largely as a result of weakening currencies in these exporting regions), but significant amounts also being sold in Germany, the Netherlands, France and Italy.

Despite being one of the leading European producers of sawn softwood, Germany trades proportionately little of its production. The vast majority of lumber manufactured in Germany is used domestically in its construction sector and its massive value-added and furniture industries. Germany is becoming more and more self-sufficient, a notable trend for many European countries. But Germany's exports did grow by more than 50% in the first quarter of 2000, most of which can be attributed to intra European trade with countries that sustained heavy storm damage (special chapter in the *Review, 1999-2000*). European exports from Germany are expected to stabilize and signs point to maintaining a consistent market presence throughout central Europe (especially Italy, France and the Netherlands). It is also interesting to note the growing importance of eastern European wood producers within Europe, many enjoying record exports for 1999. Poland sells significant amounts of sawn softwood in Germany, while the Czech Republic has captured both German and Austrian markets and, to a lesser degree, Italian markets. Lastly, Romania is a growing force in the trade of sawn softwood and has captured a niche by selling into several other, smaller markets in Europe (for example, Hungary and Greece).

[3] It should be noted that at the time of writing this chapter, 2000 trade flow data were not yet available. This particular analysis relies on 1999 data from the FAO *Forest Products*

TABLE 6.3.1

Sawn softwood direction of trade, 1999

(1,000 m³)

Major Exporters	*Major Importers*													
	United Kingdom	*Italy*	*Germany*	*Netherlands*	*France*	*Denmark*	*Austria*	*Spain*	*Other Europe*	**Sub-TOTAL**	*United States*	*Japan*	*Other*	**TOTAL World**
Sweden	2,384	243	1,311	905	447	1,188	44	558	1,288	8,368	72	497	2,103	11,040
Finland	1,258	237	939	572	754	529	114	167	773	5,343	45	600	2,281	8,269
Austria	14	3,572	646	15	7	0		1	42	4,297	135	357	837	5,626
Russian Federation	428	342	406	377	272	55	129	139	492	2,640	14	594	2,857	6,105
Latvia	1,557	10	356	139	96	44	2	48	105	2,357	16	4	70	2,447
Germany	35	502		325	507	29	178	32	259	1,867	29	49	23	1,968
Czech Republic	21	192	600	18	2	0	500	9	50	1,392	48	36	4	1,480
Poland	11	57	430	84	17	44	10	17	37	707	0		53	760
Estonia	255	7	139	73	103	32	8	16	48	681	3	4	124	812
Romania	0	44	40	3	1	0	29	13	476	606	0		604	1,210
Slovakia	8	105	47	1	3	0	72	1	317	554			127	681
Sub-Total	**5,971**	**5,311**	**4,914**	**2,512**	**2,209**	**1,921**	**1,086**	**1,001**	**3,887**	**28,812**	362	2,141	9,083	40,398
Canada	231	96	48	34	42	5	2	4	112	574	42,456	4,503	803	48,336
United States	45	148	58	12	54	2	0	198	52	569		758	1,898	3,225
Chile	80	13	0	3	0			15	16	127	535	475	308	1,445
New Zealand	1	0		0		0		0	0	1	349	245	775	1,370
Other	276		299	791	234	1,125		1,746	601	5,072	1,105	250	3,940	10,367
TOTAL World	**6,604**	**5,568**	**5,319**	**3,352**	**2,539**	**3,053**	**1,088**	**2,964**	**4,668**	35,155	44,807	8,372	16,807	105,141

Source: FAO, 2001.

6.4 North America

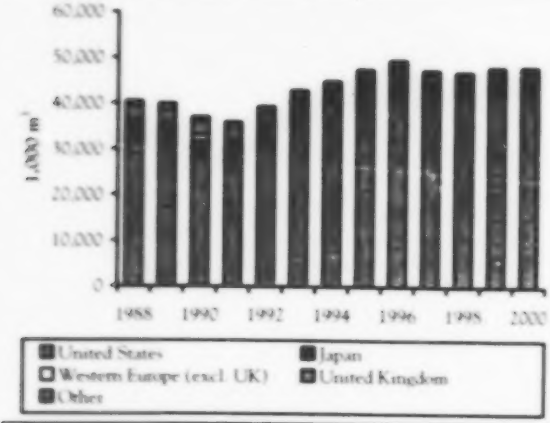
With annual Canadian exports to the United States of over 40 million cubic metres, North America remains the largest trading block for sawn softwood in the world. Fuelled by the strong United States economy, sawn softwood exports from Canada reached record highs in 1999 and 2000, representing roughly 35% of total United States softwood lumber consumption (American Forest and Paper Association, 2001).

Some key trends merit mention:

- Canadian exports of sawn softwood continue to be dominated by spruce-pine-fir dimension lumber (2-inch by 4-inch (2x4), 2x6, etc.) to the United States, primarily used for housing construction and renovation. Nominal prices have more than doubled for this commodity trade from the late 1980s to date (graphs 6.4.1-6.4.4).
- Canadian exports of further processed sawn softwood, including mouldings, flooring, siding, cabinetry, millwork, builders' joinery, and wood furniture has grown dramatically over the 1990s. The dollar value of these exports exceeded C$4.7 billion in 1999, compared to C$2.0 billion in 1995.
- North America continues to enjoy considerable price premiums in off shore markets for sawn softwood, particularly Japan and Europe. The increase in the unit values of shipments to Europe, in fact, have almost compensated in overall value for the drop in trade volumes. This reflects a change in the product mix from construction sawnwood to higher-valued appearance sawnwood.
- United States exports of sawn softwood declined dramatically in the 1990s, due to strong domestic demand and supply reductions in the Pacific Northwest (graphs 6.4.5 to 6.4.8).
- United States imports, while dominated by Canadian supply, are increasingly turning to other sources, most notably plantation-based sawnwood from South America and New Zealand. Interestingly, Nordic European supply of sawn softwood is also making an inroad into this large market (Graph 6.4.9 through Graph 6.4.11).
- United States sawn softwood usage in 2000 was as follows (Resource Information Systems, Inc. 2001):
  - New residential construction 51.8 million m^3
  - Repair and renovation 37.0 million m^3
  - Non-residential construction 5.8 million m^3
  - Industrial wood usage 31.3 million m^3
- An important issue related to North American trade in sawn softwood in 2001 is the expiration of the Canada – United States Softwood Lumber Agreement (see text box in this section).

GRAPH 6.4.1

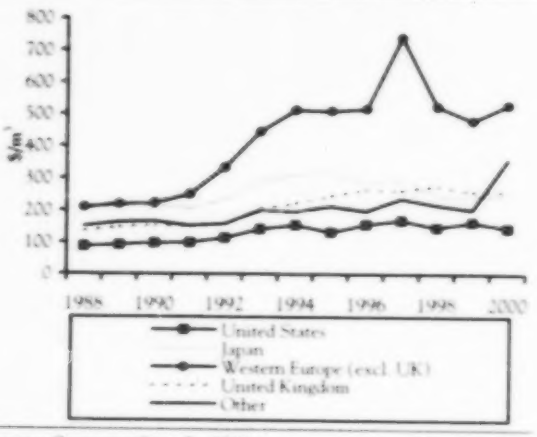
Canadian exports of sawn softwood, by destination and volume, 1988-2000



Source: Statistics Canada, 2001.

GRAPH 6.4.2

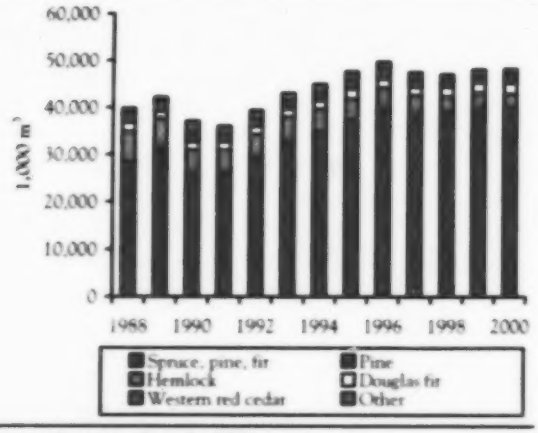
Canadian exports of sawn softwood, by destination and unit value, 1988-2000



Source: Statistics Canada, 2001.

GRAPH 6.4.3

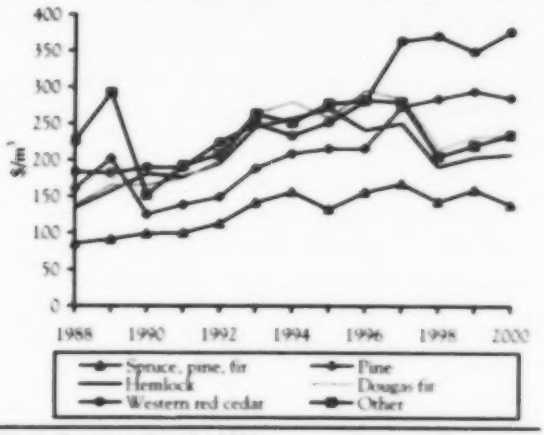
Canadian exports of sawn softwood, by species and volume, 1988-2000



Source: Statistics Canada, 2001.

GRAPH 6.4.4

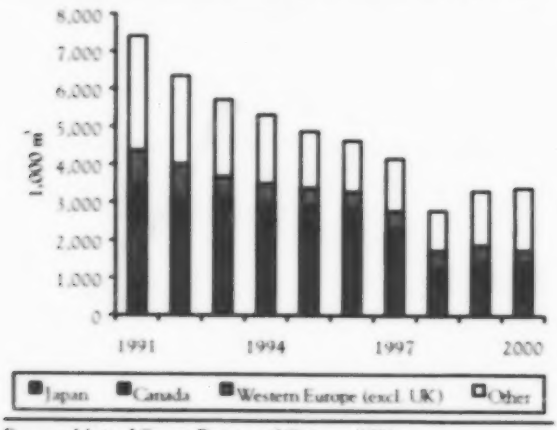
Canadian exports of sawn softwood, by species and unit value, 1988-2000



Source: Statistics Canada, 2001.

GRAPH 6.4.5

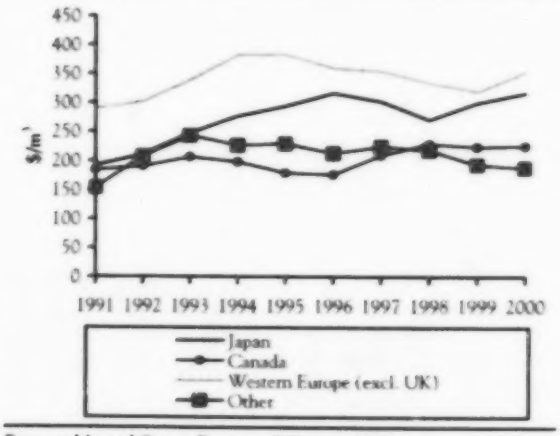
United States exports of sawn softwood, by destination and volume, 1991-2000



Source: United States Bureau of Census, 2001.

GRAPH 6.4.6

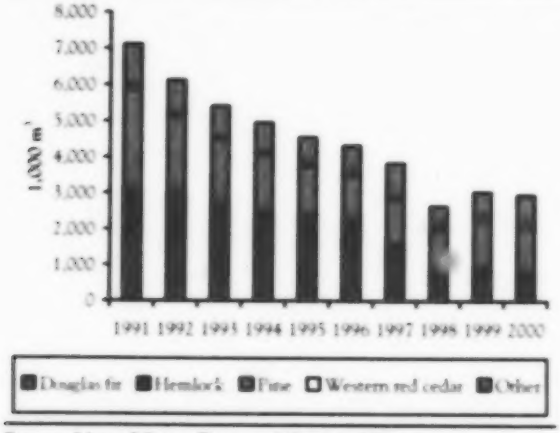
United States exports of sawn softwood, by destination and unit value, 1991-2000



Source: United States Bureau of Census, 2001.

GRAPH 6.4.7

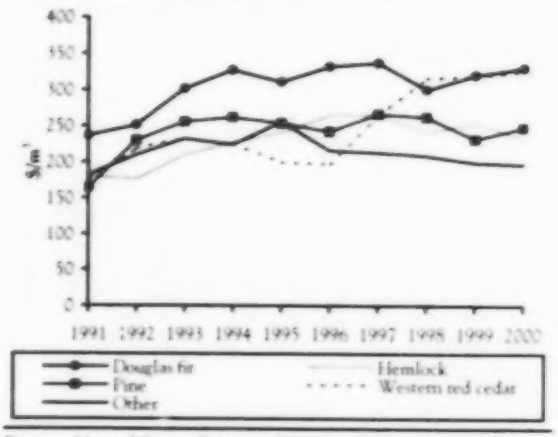
United States exports of sawn softwood, by species and volume, 1991-2000



Source: United States Bureau of Census, 2001.

GRAPH 6.4.8

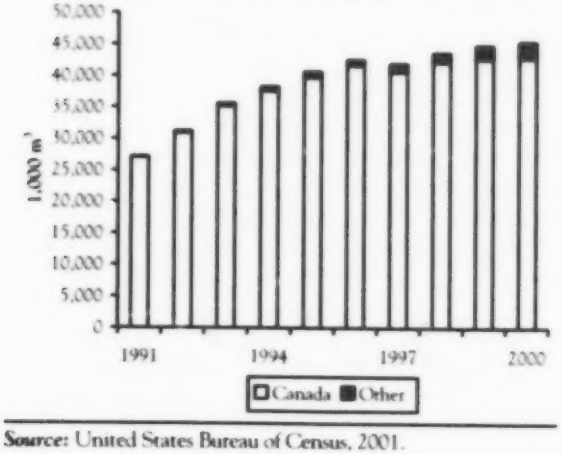
United States exports of sawn softwood, by species and unit value, 1991-2000



Source: United States Bureau of Census, 2001.

GRAPH 6.4.9

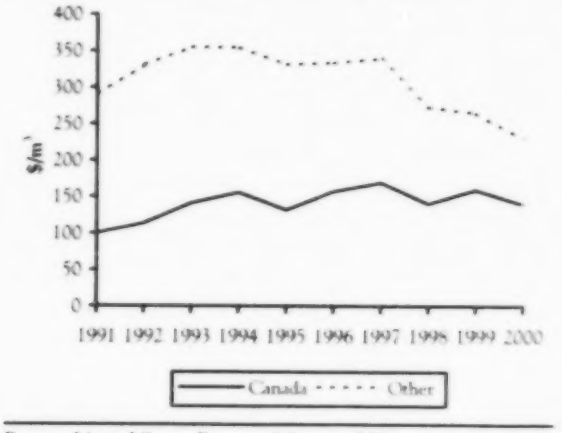
United States imports of sawn softwood, by volume, 1991-2000



Source: United States Bureau of Census, 2001.

GRAPH 6.4.10

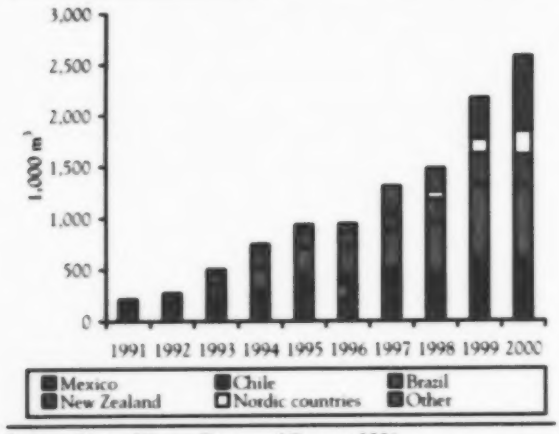
United States imports of sawn softwood, by unit value, 1991-2000



Source: United States Bureau of Census, 2001.

GRAPH 6.4.11

United States imports of sawn softwood from sources other than Canada, by volume, 1991-2000



Source: United States Bureau of Census, 2001.

Canada – United States Softwood Lumber Agreement

Canada and the United States have a long history of softwood lumber trade disputes centred around the claim by the United States industry that Canada subsidizes its lumber (sawnwood) sector. Specifically, the claim is that stumpage fees applied to Canada's largely publicly owned forests are too low and create an unfair market advantage over the United States, where the majority of the commercial timber resource is privately held. To that end, three countervailing duty investigations of Canadian softwood lumber products have been conducted by the United States in 1982, 1986 and 1992. In the first countervailing duty investigation, the United States Department of Commerce found that Canadian stumpage fees did not constitute a countervailable subsidy. The second countervail investigation was terminated before a final determination could be made as a result of a Memorandum of Understanding (MOU) enacted in late 1986 between the United States and Canada. The net result of this arrangement, which was without prejudice to both parties' positions, was a 15% export charge collected by the Canadian Government on all softwood lumber shipped to the United States. That export charge could be replaced by measures taken by provincial Governments to reform their forest management systems. In 1991, the Government of Canada terminated the MOU, claiming that stumpage rates had been increased. This led the United States Government to initiate a third countervail action. The United States lost two appeals before international trade panels and eventually ruled that there was no countervailable subsidy. Faced with the threat of a fourth countervailing duty investigation, Canada entered into discussions with the United States which resulted in the creation of the 1996 Softwood Lumber Agreement (Fukuda, 2001).

The Canada – United States Softwood Lumber Agreement (SLA) went into effect in April 1996. Consisting of ten articles, the SLA was an export control regime which permitted the fee-free export to the United States of 14.7 billion board feet of softwood lumber, with escalating fees imposed above that amount. In no way did it restrict the amount of softwood lumber that could be shipped from Canada to the United States. In return, the United States agreed to bring no further trade action during the course of the SLA. It should be noted that the SLA applied only to the four major lumber-producing provinces: Alberta, British Columbia, Ontario and Quebec. The remaining provinces were exempt. The quota itself had a lower and upper fee based structure (US$ 50 and US$ 100 per thousand board feet, respectively), depending on the total volume shipped to the United States (Fukuda, 2001).

The SLA expired on 31 March 2001. Over its course, shipments of softwood from each of the four affected provinces did not exceed shipment levels prior to quota being imposed in April 1996. Shipments from the SLA-exempt provinces (Manitoba, New Brunswick, Newfoundland, Nova Scotia, Prince Edward Island and Saskatchewan)

have more than doubled in the same time period, accounting for over 15% of total softwood lumber shipments to the United States. Finally, shipments by Canadian lumber producers of quota-exempt wood products such as logs, value-added goods, and in some instances remanufactured lumber products, have increased substantially (Fukuda, 2001). In the latter case, it is interesting to note that shipments of builders' joinery from Canada to the United States increased dramatically from the time that the SLA was enacted until 1999 (graph 6.4.12). Builders' joinery, distinct from mouldings and millwork, is essentially a modified lumber product and was, for a time, considered quota-exempt.

In general, softwood lumber prices have seen a slight upward trend and increased volatility over the past five years (graph 6.4.13). Average softwood lumber prices for the period 1996 to 2000 increased by 24% in Toronto, Canada compared with the period 1991 to 1995 while softwood lumber prices in the United States, either Great Lakes-delivered or western base price, increased 18 to 19% during 1996 to 2000 compared to 1991 to 1995. The price increase can be partially attributed to the SLA.

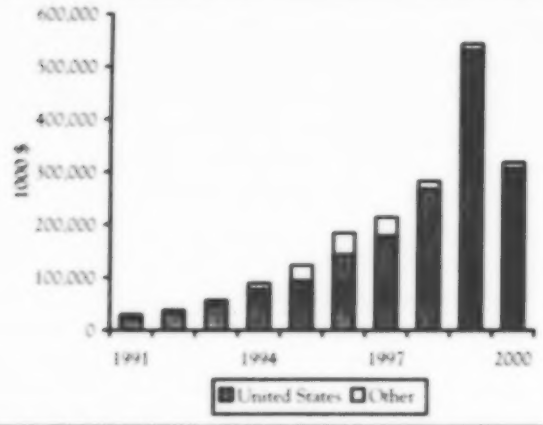
Production of softwood lumber in the United States has continued to increase to meet the growing domestic demand spurred on by strong economic growth and a robust housing market. The possibility that another quota system would succeed the expiring agreement compelled Canadian producers to ship to the limit of their quotas during the first quarter of 2001, i.e. before the SLA expiration, regardless of market signals, so as to assure themselves of the highest possible share. This no doubt influenced the huge price dip in the latter part of 2000 and the early part of 2001. The speedy recovery in prices after the first quarter of 2001 has been seen as the result of United States retailers failing to renew inventory levels at normal rates during the preceding period owing to the perception that there would be a "wall of wood" from Canada following the expiry of the agreement. While some risk-averse Canadian producers may be holding back on shipments to the United States for fear of retroactive action if a new tariff or duty is imposed, overall, shipments from Canada have increased moderately. Lumber inventories of Canadian producers are building up (Johnson, 2001b) and any United States bound lumber is being charged a premium to offset potential future levies (Johnson, 2001a, *Random Lengths*, 2001).

Beyond the trepidation currently being exhibited by some Canadian producers, there can be no doubt that the expiration of the SLA has had a negative impact on the production of softwood lumber in Canada, with some mills planning to decrease production and others limiting their shipments to the United States (*Random Lengths*, 2001). Certainly, the anticipated flooding of the United States market by Canadian lumber producers did not occur as a result of a duty-free environment. In fact, some evidence points to the possibility that softwood lumber trade will approach levels seen when the SLA was first put in place, especially in view of the weakening United States and Japanese economies (Smyth, 2001).

It is difficult to foretell what the future has in store for Canada – United States softwood lumber trade relations. There is currently no formal agreement in place. In all probability, a countervail duty will again be imposed, appealed and enacted through the World Trade Organization (WTO) and NAFTA. On 2 April 2001, United States industry petitioned for countervailing and anti-dumping duties on Canadian softwood lumber. The petitions call for a countervail duty of 39.9% and an anti-dumping duty of between 28% and 38%. The United States Department of Commerce's countervailing duty and dumping investigations are expected to make preliminary findings in the late summer or early fall of 2001, which could result in new duties on shipments from Canada. Canadian producers that have shipped softwood lumber after the expiration of the SLA may be forced to pay some duties retroactively if the United States finds "critical circumstances", e.g., a significant surge (over 15%) in Canadian lumber imports (*Wood Markets*, 2001, Johnson, 2001a).

GRAPH 6.4.12

Canadian exports of builders joinery, 1991-2000



Source: Statistics Canada, 2001.

GRAPH 6.4.13

North America sawn softwood prices, 1995-2001

Note: Prices are for a mix of qualities, species and sizes.
Source: *Random Lengths Yardstick*, 2001.

6.5 Japan[4]

The global demand for sawn softwood is dominated by three regions: North America, Europe and Japan. Like North America, Japan has a long history of building wooden single family homes outside of the large urban centres, and this represents the major end use of Japan's domestically produced and imported sawn softwood. Unlike North America, however, there is little repair and renovation wood use (although it is beginning to emerge (see discussion in chapter 4)). Wood for interior finish represents the next largest wood use.

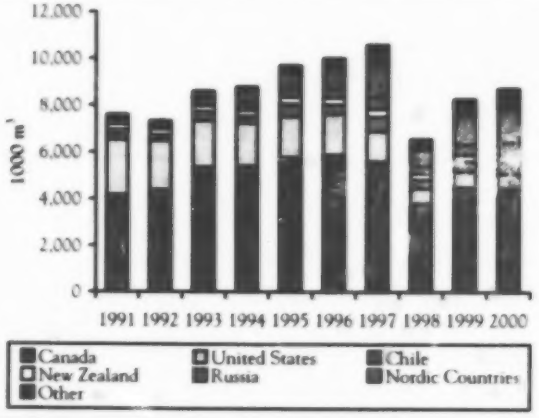
Key Trends:

- While overall sawn softwood imports have increased since the 1997-1998 economic crisis lows, Japan's economy remains sluggish, and housing starts are not expected to return to their 1990s peaks.
- Nordic countries and Austria have gained impressive market share for sawn softwood, approaching 2 million cubic metres in 2000, and trending higher. This has mostly been at the expense of United States supply (graph 6.5.1). Canada's market share has been fairly stable, owing in part to the favourable exchange rate as compared to the United States dollar.
- Price premiums remain modest for North American sawn softwood as compared to Nordic European sawn softwood. Prices are generally lower for sawn softwood from New Zealand and Russia (graph 6.5.2). Price differences may be due to variations in traded sizes, species and qualities.
- Japan is moving to pre-cut components for its home building, which has greatly reduced their demand for green sawn softwood in favour of kiln-dried lumber.

The use of glulam continues to rise dramatically. This, combined with the previous point and the fact that Japan has a shortage of drying capacity, has created a large demand for kiln-dried sawn softwood as furnish for domestic glulam production ("lam stock"). In fact, a large proportion of the sawn softwood imported from Europe is for this end use.

GRAPH 6.5.1

Japanese imports of sawn softwood, by origin and volume, 1991-2000

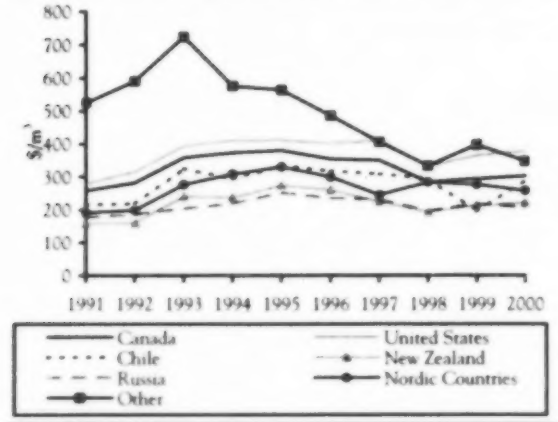


Source: Japan Tariff Association, 2001.

[4] For a more detailed overview of wood products issues in Japan, please refer to Chapter 4 of the *Forest Products Annual Market Review, 2000 – 2001* ("Influences on Japanese demand for wood products" by Cohen, Gaston and Kozak).

GRAPH 6.5.2

Japanese imports of sawn softwood, by origin and unit value, 1991-2000



Source: Japan Tariff Association, 2001.

6.6 Plantation-sourced sawn softwood

Plantation supplies of sawn softwood, while not insignificant in the southern United States, mostly lie outside of UNECE region. However, it is important to recognize that the volumes are significant (tables 6.6.1 and 6.6.2). Looking to the future, Brown (2000) estimates *total* plantation supply (softwood and hardwood) from the present day's 125 million cubic metres to 330 million cubic metres by 2050.

6.7 Summary

In what has been a fairly economically robust 2000, the UNECE Timber Committee estimates for 2001 were, not surprisingly, positive. Growth in production, imports and exports was anticipated for 2001 across all European regions. The same cannot be said for the UNECE region of North America, where the end of the Softwood Lumber Agreement between Canada and the United States will, in all likelihood, have a negative impact on sawn softwood production and trade flows. The extent to which this will impact on trade with Europe depends largely on when an agreement between these two key sawn softwood players can be reached and what that agreement would be. However, at the time of writing this chapter, there had been no resolution.

The outlook for European consumption of sawn softwood continues to look promising, especially in light of favourable economic conditions and long-term growing construction markets. Nordic countries will continue to dominate in sawn softwood production, but will rely less on indigenous fibre as a source of raw material and increasingly on log imports from other European countries (such as the Baltic countries) and the CIS in order to sell high quality lumber products overseas. Some of this domestic demand will also continue to be met by Austria, Germany and the burgeoning lumber producing regions of eastern Europe.

TABLE 6.6.1

Production of industrial roundwood from plantations compared to Sweden, 1995-1999

(1,000 m³)

	Industrial roundwood				
	1995	*1996*	*1997*	*1998*	*1999*
New Zealand, Chile and Brazil	72,818	67,207	68,495	64,719	68,022
Sweden	56,200	48,660	52,460	51,436	49,620

Source: FAO, 2001.

TABLE 6.6.2

Production of sawn softwood from plantations compared to Sweden, 1995-1999

(1,000 m³)

	Sawnwood				
	1995	*1996*	*1997*	*1998*	*1999*
New Zealand, Chile and Brazil	14,919	15,354	15,995	15,981	16,421
Sweden	14,737	14,170	15,419	14,874	14,608

Source: FAO, 2001.

6.8 References

Baltic Timber Journal. No. 2, December 2000, p. 20 – 21

Brown, Christopher (2000). The Global Outlook for Future Wood Supply from Forest Plantations. FAO Working Paper GFPO5/WO/03. *Global Forest Products Outlook Study Working Paper Series.*

Europäischer Wirtschaftsdienst – EUWID (2000). No. 45, November 8, 2000. p. 2 – 8.

Food and Agriculture Organization of the United Nations (2001). *Forest Products Yearbook*, FAO Statistics Series No. 157.

Fukuda, Jun (2001). A Study of the Effects of the Canada – U. S. Softwood Lumber Agreement. CINTRAFOR Working Paper 80. Center for International Trade in Forest Products, University of Washington, College of Forest Resources. February 2001. p. 58.

Johnson, L. Ward (2001a). How Much for that Dog in the Window?. *Madison's Canadian Lumber Reporter*, volume 51, No. 22, June 1, 2001. p. 1.

Johnson, L. Ward (2001b). The Ultimate Big Gun. *Madison's Canadian Lumber Reporter*, volume 51, No. 24, June 15, 2001. p. 1.

Random Lengths (2001). Lumber Price Rebound Near Record Territory. *Random Lengths – The Weekly Report on North American Forest Products Markets*, volume 57, Issue 22, June 1, 2001. p. 1.

Random Lengths Yardstick (2001). *Random Lengths Yardstick – The Monthly Measure of Forest Products Statistics*, volume 5, Issue 5, May 2001. p. 19.

Resource Information Systems, Inc. (2001). *North American Lumber Forecast*, April 2001. Boston, Massachusetts.

Spelter, Henry (2001). Softwood Lumber in 2001. Western Wood Products Association Annual Meeting. Portland, Oregon.

Smyth, Doug (2001). The Impact of the U. S. and Japanese Consumption and Timber Supplies on Softwood Lumber Prices after the United States – Canada Quota Agreement. Part 1: Life After the U. S. – Canada Softwood Lumber Agreement. *Madison's Canadian Lumber Special Report*, April 2001. 12 p.

Timber and Wood Products – TTJ (2000). Softwood, Tough Talk. December 9, 2000. p. 10 – 11.

Timber and Wood Products – TTJ (2001). Tough Time for Softwood. May 26, 2001. p. 10 – 11.

Timber and Wood Products – TTJ (2001). Fragile Stability Held. June 2, 2001. p. 10.

United Nations (2000). Sawn Softwood – Consumption, Supply and Trade. *UNECE / FAO Forest Products Annual Market Review*, 1999-2000. United Nations Publications, 2000. p. 91 – 203.

Wood Markets Quarterly (2001). Canada – U. S. Lumber Wars: Facts versus Fiction. *Wood Markets – The Monthly International Solid Wood Report*, volume 6, No. 2, March 2001. p. 1.

Chapter 7
Sawn hardwood – consumption, supply and trade[1]

Highlights

- Consumption of sawn hardwood in the UNECE region continued to rise to an all-time record through 2000, driven by improved economic conditions, particularly in the United States.
- Sawn hardwood production in the UNECE region increased by 4.1%.
- Sawn hardwood production in the United States reached an all-time record level in 2000 but, based on early reports, may have fallen by up to 25% in the early part of 2001.
- Trade in hardwoods was at record levels in 1999 and continued to accelerate during most of 2000 throughout the UNECE region.
- Prices of logs and sawnwood produced in the region advanced, although much more so in North America where the domestic and export demand was exceptionally strong and only towards the end of 2000 showed any sign of easing.
- European production of sawn hardwood in 2000 responded to increased demand and improved prices and swelled with the recovery of storm-blown timber at the beginning of the year and demand from Asia.
- Eastern Europe emerged as a more significant supplier of sawn hardwoods greatly assisted by the continued strength of the dollar and weakness of the euro currency.
- Globalization of hardwood markets continued to play an increasingly important role, well demonstrated by the influence of such countries as China in the global supply and demand equation.
- Rationalization in the furniture industry within and outside the UNECE region is changing the supply and demand profile for sawn hardwood.
- The first half of the 2001 market saw a sharp downturn in demand levels and prices in North America and Europe.

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Secretariat introduction

The secretariat would like to thank Mr. Michael Buckley for authoring this analysis of the sawn hardwood markets. Mr. Buckley is well placed to perform such an analysis in that he has considerable experience throughout Europe and the United States, both as a hardwood industry consultant and also as the former European Director of the American Hardwood Export Council (AHEC). As the hardwood market is also global, especially when its tropical aspect is included, Mr. Buckley's first-hand knowledge about hardwood markets outside of the UNECE region is valuable. This is the first time in a decade that the hardwood analysis has been done by someone outside the secretariat and we hope readers will appreciate this contribution by a renowned expert.

We are grateful to Mr. David Venables, European Director of AHEC for facilitating this chapter. Several members of the secretariat have participated in the annual European American Hardwood Convention organized by AHEC, which has proved to be mutually beneficial. This cooperation on the *Review's* sawn hardwood chapter extends this collaboration yet one more step.

7.1 Introduction

The year of 2000 was truly a millennium year with the strongest performance in sawn hardwood for a long time and may eventually prove to have been a vintage year for most of the UNECE region. Throughout the year production increased universally, international trading developed well for all exports, and apparent consumption was significantly increased throughout the region, except possibly in the Russian Federation where 2000 volumes were up on 1999 but still well down on the 1996 level.

This chapter analyses the developments in sawn hardwood markets in the UNECE region as a whole and this year draws a distinction between EU/EFTA and other European countries. Tropical sawnwood is analysed separately in chapter 12 but is included in some import volumes in this chapter. A separate analysis of secondary processed wood products in chapter 11 describes the end uses, and indirectly, therefore, the demand for sawn hardwood. The sawnwood analysis is based on the statistics received from countries in the ECE region to whom we are grateful for this critical basis for the analysis. In addition, considerable material was drawn from secondary sources, for example trade journals and websites, as well as trade shows and industry conferences.

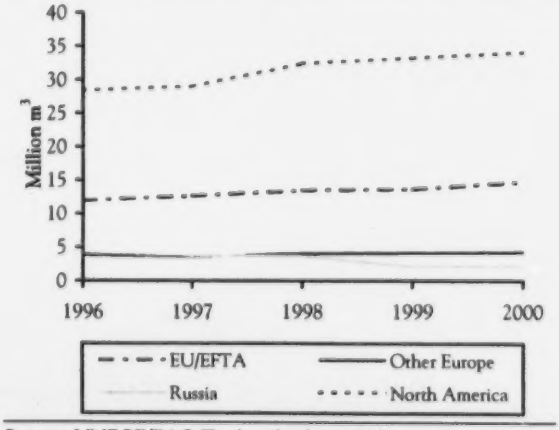
7.2 UNECE market developments

Apparent consumption of sawn hardwood in the entire UNECE region, which had fallen consistently in the early- to mid-1990s, is showing a recovery (graph 7.2.1) (table 7.2.1). The volume consumed in 1999 was up by 1.2% for the whole region compared with 1998, but last year increased to 55.2 million m^3, a further 3.4% gain over 1999. This is despite the increasing trend towards the trading of further or semi-manufactured hardwood and components which has developed in some countries, such as the German markets for furniture and interior joinery.

Sawn hardwood production responded to improved demand and rose by almost 3 million m^3 to reach a record 53.5 million m^3 in 2000 – an increase of 4.1%. Half the increase came from the United States and most of the balance of the increase came from Germany (up 11.6%), France (up 20.0%) and Romania (up 35.6%). Production in the other (non EU/EFTA) European countries has continued to grow thanks to investment and limited improvements to infrastructure. Production of hardwood products and semi-finished components may actually be growing faster than sawn hardwood as a commodity. International trade in sawn hardwood also continued to expand after achieving record levels in 1999. Exports increased in 2000 by a further 18.6% and imports by 12.0% with France exporting 15.7% more after storm clearing and notable increases of 53% and 19% from Romania and Latvia respectively. Several countries in central and eastern Europe increased imports by 15% to 29% reflecting the need to obtain material mainly for processing and re-export, e.g. as furniture. "Other European" imports have doubled in the last five years and approached 1 million m^3 in 2000, roughly a tenth of the EU/EFTA import volume. What is remarkable is that both Europe and North America have each shown almost identical growth in production over the last five years at 17%; however, production in North America is more than double that of the entire European region

GRAPH 7.2.1

Consumption of sawn hardwood, 1996-2000



Source: UNECE/FAO Timber database, 2001.

TABLE 7.2.1

Sawn hardwood balance in the UNECE region, 1996-2000

(Million m³)

	1996	1997	1998	1999	2000	Timber Committee estimate for 2001 *
EU/EFTA						
Production	7.76	7.41	7.50	7.86	8.52	8.53
Imports	5.75	6.92	7.74	8.25	9.17	9.17
Exports	1.61	1.73	1.82	2.52	3.01	3.06
Net trade	-4.14	-5.19	-5.92	-5.74	-6.16	-6.11
Apparent consumption	11.91	12.60	13.42	13.60	14.67	14.64
OTHER EUROPE						
Production	5.11	5.17	5.84	6.24	6.72	6.97
Imports	0.48	0.41	0.65	0.80	0.97	0.98
Exports	1.75	1.96	2.47	2.92	3.44	3.60
Net trade	1.27	1.54	1.81	2.12	2.47	2.62
Apparent consumption	3.84	3.62	4.02	4.12	4.25	4.35
RUSSIAN FEDERATION						
Production	4.38	3.93	3.97	2.47	2.58	2.71
Imports	0.01	0.05	0.03	0.01	0.01	0.01
Exports	0.25	0.25	0.25	0.30	0.36	0.39
Net trade	0.24	0.20	0.22	0.30	0.36	0.39
Apparent consumption	4.14	3.73	3.75	2.17	2.22	2.32
NORTH AMERICA						
Production	30.47	30.74	33.85	34.82	35.64	36.27
Imports	1.45	2.12	2.25	2.58	2.87	2.84
Exports	3.55	3.89	3.68	4.15	4.49	4.72
Net trade	2.11	1.77	1.43	1.57	1.62	1.88
Apparent consumption	28.37	28.97	32.42	33.25	34.02	34.39

*= The Timber Committee's forecast trend for 2000 to 2001, made at the October 2000 session, was applied to the 2000 figure.

Source: UNECE/FAO TIMBER database, 2001.

including the Russian Federation. The apparent consumption in the Russian Federation increased slightly, by 2.3%, to reach 2.2. million m³, approximately half of the volume in 1996, as most of the 100,000 m³ increased production was exported.

Production of sawn hardwood accelerated in Europe in 2000, by 8.5% overall to a record 15.2 million m³. EU/EFTA was up by 8.5% owing to storm clean-up and other European production was up 7.8% compared with 1999 (table 7.2.2). However, within those increases there were some great variances, such as a 20% increase in production in France from the clearing up of storm blown timber and a rise of 12% in Germany responding to export opportunities in Asia. In Romania, where sawnwood production is developing with the aid of renewed foreign market interest, production was up by almost 36% and is up by 77% over the last five years. North American production increased less than Europe in 2000, in volume by 827,000 m³ and in per cent, by 2.4%.

The last year has also demonstrated the extent to which the sawn hardwood market is global and that no market, including the UNECE region, operates in isolation. For example, the growth of Asian markets in 1999 and 2000 for European beech, a hitherto generally undiscovered species in that region, has had far-reaching effects. Production, exports and grading of beech were all influenced by strengthening demand from Asia and particularly from China. However, consumption forecasts that were made in 1999 for growth ultimately proved unwise. By the end of 2000, China was overstocked with European beech – much of it bought following the December 1999 storms in France and parts of Germany and Switzerland. Buyers were few and far between – and prices were affected accordingly. Chinese traders in the main domestic markets of Guangzhou and Shanghai complained of depleted and even negative trading

TABLE 7.2.2

Production of sawn hardwood, 1997-2000
(1,000 m³)

	1997	1998	1999	2000	Change 1999 to 2000	
					Volume	%
EU/EFTA	7,413	7,496	7,863	8,517	654	8.3
of which:						
France	2,807	3,023	2,979	3,575	596	20.0
Germany	1,048	1,165	1,559	1,740	181	11.6
Italy	963	900	900	840	-60	-6.7
OTHER EUROPE	5,165	5,836	6,238	6,723	486	7.8
of which:						
Turkey	1,801	1,889	2,020	2,141	121	6.0
Romania	746	744	973	1,319	346	35.6
Poland	764	782	788	790	2	0.3
Latvia	150	400	593	580	-13	-2.2
CIS	4,629	4,813	3,281	3,483	202	6.1
of which:						
Russian Federation	3,925	3,970	2,465	2,577	112	4.5
NORTH AMERICA	30,743	33,850	34,818	35,645	827	2.4
Canada	835	1,027	1,051	1,083	32	3.0
United States	29,908	32,823	33,767	34,562	795	2.4

Source: UNECE/FAO TIMBER database, 2001.

margins in this relatively new business and so European producers and exporters did not achieve the anticipated level of new felling sales when they resumed harvesting in winter 2000/2001.

Meanwhile the furniture industry in China, which is enjoying improved domestic demand based on economic development, is also having more noticeable effects on the United States domestic furniture producers. Chinese furniture exports are expanding rapidly, especially to the United States where some furniture manufacturing capacity rationalization is now occurring as a result, and partly owing to the slowing of the United States economy.

The UNECE/FAO hardwood statistics, especially for EU/EFTA imports, contain varying volumes of tropical sawnwood. While production of tropical sawnwood by UNECE region producers from imported logs is low, the imports of tropical sawnwood are important in the EU/EFTA sub-region. In that sub-region the tropical sawnwood imports were 31% in both volume and value of total sawn hardwood imports. In 2000 in the same sub-region the tropical sawnwood imports rose to a 34% share of volume or 3.1 million m³ and increased to a 38% share of the total value or $1.2 billion. (More information on tropical sawnwood imports by the UNECE region may be found in chapter 12.)

7.3 North American market developments

Apparent consumption in North America was 34.0 million m³, of which the United States accounted for 33.3 million m³. The United States accounts for 62% of apparent consumption of sawn hardwoods for the whole UNECE region but grew at a slower (than average) rate of 2.4% in 2000, perhaps as the beginning of the economic downturn started to bite in the third and fourth quarters and also because per capita consumption of hardwood is already far greater in the United States than in the rest of the region. In the year 2000 consumption per 1,000 inhabitants was 116 m³ in the United States compared with an average of 35 m³ in EU/EFTA, 22 m³ in other European countries and 24 m³ in Canada. The American hardwood industry responded to strong United States demand and production of sawnwood last year was the highest ever in the United States and may well prove to be an all-time peak, given the subsequent turnaround in the 2001 market.

United States production has increased by more than 10 million m³ since 1991, mostly driven by the strong economy for hardwood products and for pallets and packaging of many United States products for domestic and overseas transportation. Some of this growth has been driven by exports as the result of the United States

industry's extra investment in drying capacity, its commitment to export markets and successful promotion by the American Hardwood Export Council.

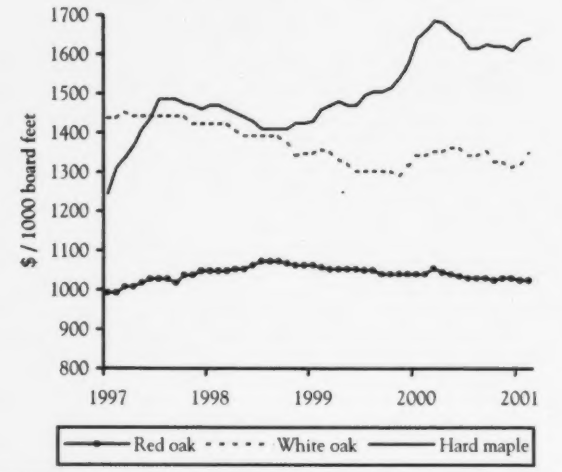
Although United States exports amounted to less than 9% of production in 2000, export products take high grade material and prices far exceed domestic prices – which gives rise to the continuing efforts by the United States to expand exports. The 2000 production of 35.6 million m^3 of sawn hardwood in the United States was produced from sawlogs that represent only 31% of the total hardwood harvest according to the latest information from USDA Foreign Agricultural Service. Approximately 62% of American hardwood logs harvested are used for fuel and pulpwood. As about 34% of sawnwood is used for domestic pallets and packaging and 6% for railroad ties (sleepers), it can be seen that all the "grade lumber" for furniture, joinery, mouldings and flooring is drawn from less than 20% of annual harvest. Only from this portion are the exports made. There is therefore an important balance and interdependence between the higher domestic and export grades and lower grades sold only domestically, and any disruption of demand for one can affect the availability of the other.

The United States domestic market enjoyed strong demand through the first three quarters of 2000 and excellent weather conditions allowed good production of logs resulting in high log stocks through the winter of 2000/2001 just as signs of a domestic market downturn started to emerge. Rapidly rising prices for domestic hardwood through the first three quarters of last year inevitably led to some consumer resistance by October. Exporters of hardwood, and finished products throughout the United States economy also began to feel the adverse and cumulative effects of currency rates, which further affected sales. By the early part of 2001 sawmill production cutbacks and lay-offs reduced sawn hardwood production as most markets went into decline.

Domestic and export prices rose strongly in the early part of 2000 and were only prevented from going even higher by the increase in production levels. This was also reflected in the higher prices that sawmills were forced to pay for logs, especially for some fashionable species, such as maple and cherry. These are in increasingly short supply due to additional restrictions to public forest access and threatened further restrictions. Any analysis of prices must take into account export and domestic grades and specifications, and there are also wide regional variances in the United States. Nevertheless a general price trend is given by graph 7.3.1. Red oak prices, the staple of both furniture and joinery, peaked in March and April although at a lower level than in mid-1998. White oak prices peaked in mid-2000, again lower than the 1997 and 1998 levels. However hard maple prices fluctuated throughout 2000 at record levels, as did cherry.

GRAPH 7.3.1

Sawn hardwood prices in the United States, 1997-2001



Source: *Hardwood Review*, 2001.

By the end of 2000 it also became clear that the strength of the dollar was adversely affecting American sawn hardwood exports, which had enjoyed another all-time record year at 3.0 million m^3, an increase of roughly 7% over 1999 and worth $1.43 billion (table 7.3.1). This was largely due to the recovery of some Asian markets, continuing strong demand from key European markets such as Italy and Spain, and the development of China (including Hong Kong) (table 7.3.2). The main destination remained Canada where much of the import is processed (i.e. dried, re-graded, sorted, trimmed and re-packaged in Canada) and then re-exported to compete with its original exporters. In 2000 Canadian sawn hardwood exports were 1.5 million m^3, mainly based on United States-grown hardwoods.

The first half of 2001 has produced a complete turnaround in the market with falling prices, reduced production and intense competition among exporters for market share. This is particularly tough in Europe where added competition from European producers has been heightened by the weakness of the euro and relative strength of the dollar. By July 2001, the average domestic prices of furniture grade sawn hardwood had fallen from the 2000 peak: red oak by 9%, white oak by 8% and hard maple by 8%. Some sawmills have closed and many have reduced production to the point at which there were mid-year predictions of shortages of dry sawn hardwood for the winter of 2001/2002. As a background to this, the United States hardwood industry also fears a widespread loss of much of the crucial domestic furniture industry demand to cheaper labour cost regions of the world. Theoretically this could raise sawn hardwood exports to replace lost

TABLE 7.3.1

Exports and imports of sawn hardwood, 1997-2000
(1,000 m³)

	1997	1998	1999	2000	Change 1999 to 2000	
					Volume	%
EXPORTS						
EU/EFTA	1,731	1,822	2,519	3,010	491	19.5
of which:						
France	576	552	719 E	832 E	113	15.7
Germany	365	446	494	718	224	45.3
Belgium	...	...	397	433	36	9.1
Austria	115	110	243	261	18	7.4
Netherlands	123	137	145	219	74	51.0
Italy	103	125 P	161	167	6	3.7
Other Europe	1,955	2,466	2,921	3,440	519	17.8
of which:						
Romania	325	333	423	646	223	52.7
Latvia	136	316	372	442	70	18.8
Poland	256	297	308	315	7	2.3
CIS	326	328	757	572	-185	-24.5
of which:						
Russian Federation	246	249	303	363	60	19.8
North America	3,893	3,680	4,149	4,490	341	8.2
Canada	1,003	1,178	1,339	1,494	155	11.6
United States	2,890	2,502	2,810	2,996	186	6.6
IMPORTS						
EU/EFTA	6,921	7,743	8,254	9,167	913	11.1
of which:						
Italy	1,760	2,021 P	2,054	2,076	22	1.1
Spain	900	1,259	1,201	1,323	122	10.2
Netherlands	542	605	687	1,052	365	53.2
France	601	600	720 E	842 E	122	16.9
Belgium	...	...	714	828	114	16.0
Germany	852	775	809	771	-38	-4.7
Other Europe	410	652	804	968	164	20.4
of which:						
Poland	75	94	133	160	27	19.9
Slovenia	84	90	120	143	24	19.9
Hungary	26	36	119	136	17	14.6
Czech Republic	66	89	91	117	26	28.6
Turkey	51	78	100	77	-23	-23.0
CIS	132	112	113	189	76	66.8
of which:						
Russian Federation	46	26	7	6	-1	-14.3
North America	2,123	2,249	2,580	2,866	286	11.1
Canada	1,027	954	1,084	1,184	100	9.2
United States	1,096	1,295	1,496	1,682	186	12.4

Source: UNECE/FAO TIMBER database, 2001.

TABLE 7.3.2

Sawn hardwood exports from United States to top ten markets, 1997-2000
(1,000 m³)

	1997	1998	1999	2000	% change 1999 to 2000
Canada	906	816	952	1,029	8.1
Mexico	171	199	233	253	8.2
Italy	208	180	186	201	8.1
Spain	149	160	159	182	14.5
Hong Kong S.A.R.	126	119	146	166	13.7
China	34	33	75	130	73.3
United Kingdom	125	128	125	126	0.8
Japan	246	137	152	119	-21.7
Taiwan Province of China	152	115	110	96	-12.7
Germany	173	105	89	78	-12.8

Source: United States Department of Agriculture, Wood Products: International Trade and Foreign Markets, Annual Statistical Trade Edition, 2001.

domestic business but in reality one rarely compensates for the other. Whatever the outcome, United States hardwood industry observers suggest that with production cutbacks in 2001 and caution over investment until price levels are sustained again, the record production level of 2000 is unlikely to be repeated.

Imports into North America continue to grow steadily, but in the United States they remain at the equivalent of 8.0% of production. Caution is needed in interpreting United States imports as the data include intra-trade within the continent. However, the United States market does have significant imports of tropical sawnwood such as South American mahogany and teak, which are included in the sawn hardwood import statistics of this chapter. In volume the share of tropical sawnwood imports was 28% of North American imports of sawn hardwood in 2000 at 807,000 m³. In value it was higher, 41%, at $365 million. The change from 1999 was insignificant.

One difference between North America and Europe is the focus of the environmental debate surrounding hardwoods, which in Europe tends to be on imported species on which countries such as the United Kingdom and the Netherlands are dependent. In the United States, environmental focus is largely on domestic harvesting and regeneration. During 2000 the American Forest & Paper Association (AF&PA) had sought mutual recognition of its Sustainable Forestry Initiative (SFI) with other national certification schemes and in June 2001 was elected to the Council of the Pan European Forest Certification (PEFC) scheme. AF&PA then announced its intention to seek recognition with PEFC, which would take their joint certified area to 59 million hectares by the end of 2001. The American Tree Farm System is another scheme, which has long been established and has mutual recognition with the SFI. Meanwhile a number of United States hardwood producers also gained Forest Stewardship Council (FSC) certificates following the example earlier set by the State of Pennsylvania, which now has all State-owned forests certified under FSC criteria.

7.4 European market developments

Taking the European region as a whole, apparent consumption totalled 19.0 million m³ in 2000, which was an increase of 7% on 1999. Consumption of sawn hardwood in the European Union and EFTA countries increased by 1.0 million m³ in 2000 compared to 1999, an increase of 7.9% to a record 14.7 million m³, whereas it grew by only 3.2% and hit 4.3 million m³ in "other" European countries. Of the main EU countries, France and United Kingdom recorded significant increases in consumption of over 20%, and outside the EU/EFTA sub-region only Romania grew its consumption significantly, by approximately 23%. It was notable that apparent consumption fell in Germany by 4.3%, where domestic demand continued to disappoint but exports, mainly of beech, far exceeded the increase in production. The largest apparent consumption, 3.6 million m³, was in France, where production increased unexpectedly due to the windthrow, accounting for 25% of EU consumption. The United Kingdom, where unemployment continues to fall, enjoyed a strong economy despite the reductions in manufacturing industries and the problems of exporters coping with an apparently over-valued pound sterling. Romania, a hardwood-rich country, where foreign investment is beginning to show through, was also the largest consumer outside of the EU/EFTA sub-region, just above Poland (more on Romania in special chapter 3).

Consumption of hardwoods in Europe is largely driven by business investment and consumer confidence. Jobs and a healthy economic climate give rise to strength in the property market, which leads to demand for construction and renovations that require joinery, furniture and flooring. But, although inflation in Europe is generally under control and interest rates have been falling, consumer confidence remains fragile. Unemployment is still considered too high in most of the European Union and income levels remain poor in many non-EU countries. Finally Germany, the so-called engine room of Europe and largest trading partner to many neighbouring countries, is continuing to disappoint with its slow economic growth and low level of activity in new construction.

The flooring market in Europe continues to demand hardwood products in a wider range of species and a considerable shift in consumer attitudes to grades. Most producers of solid hardwood and laminated systems now offer "character wood" grades to individual consumers through retailers. However, the professional specifiers and architects are not yet convinced that their clients want such grades. The hardwood flooring manufacturing capacity in Europe seems to be approaching a situation of oversupply if the proliferation of new production lines is anything to go by. The major producers established in Germany, France, Italy and the Nordic countries have been joined by a mass of smaller manufacturers from all over Europe and competition is likely to get much tougher. Parquet production in Europe had already trebled between 1985 and 1999, as reported in this *Review* last year. The European Federation of the Parquet Industry (FEP) now includes non-EU members and reported that consumption in the "traditional" (EU) FEP countries set a new record in 2000 reaching 63 million m^2 production (up 8.7% on 1999) – to which is added almost 7 million m^2 production in Hungary and Romania (table 7.4.1). Consumption is also up at 80.6 million m^2 with the difference accounted for by imports and exports. 14% of the FEP production is solid sawn flooring, with "multilayer" accounting for 72% and "lamparquet" for 9%.

TABLE 7.4.1

Flooring production by Federation of the Parquet Industry members, 1997-2000

	Area	change over previous year	
	(1,000 m^2)	Area	%
1997	53,836	3,258	6.4%
1998	58,308	4,472	8.3%
1999	60,774	2,466	4.2%
2000	62,957	2,183	3.6%

Source: FEP, 2001.

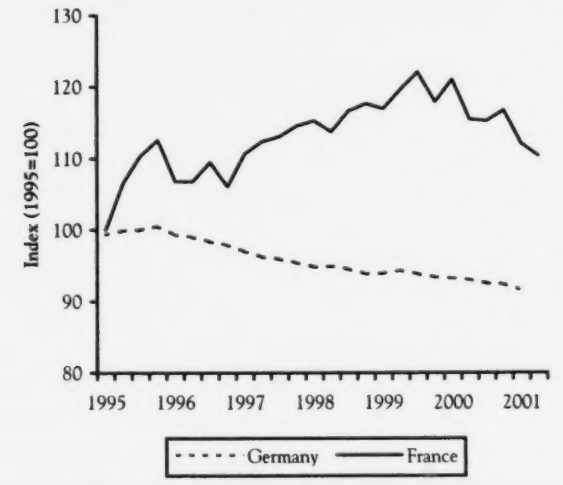
White oak for barrels for European producers of wines and spirits continues to be in seemingly ever increasing demand, and oak is sourced widely in Europe and the United States. While there is an enormous debate in the wine industry as to the best oak, there are dedicated users of both French and American oak (white only, as red oak is unsuitable) as well as those who source oak in eastern Europe. For example, Russian oak is used in countries such as Greece, and Croatian oak is exported to France where provenance may not always be declared. France is currently said to be facing a crisis of competition, not only for its wine production from the "new world" producers, but also for oak suitable for stave material which many believe will soon be in short supply. Meanwhile other European wine-producing countries, such as Spain, continue to need increased quantities of oak barrels as the taste of "oak-aged" wine maintains its fashion.

Furniture industries in Europe are subject to the same global pressures as any other industry and ultimately respond to material costs and competition from imports. In this case it gives rise to inter-State trading, and eventually a shift by manufacturers towards countries with cheaper production costs. Whereas many American manufacturers have faced competition from outside the region (Mexico, Taiwan Province of China and now China), European manufacturers are mainly experiencing a shift eastwards but within the region. European furniture markets had shown some improvements in 2000 after poor performances in 1998 and 1999 and there was considerable optimism at the furniture shows in Brussels, Paris, Cologne and Milan in 2000 and 2001. However, this may have been misplaced, as furniture markets have not realized their earlier promise. Some major producers in France declared bankruptcy in early 2001 and market forecasts have been adjusted for many countries. The German market is largely emulating the Japanese furniture producers by sourcing "offshore" to the benefit of manufacturers in Poland and other eastern European countries.

Meanwhile the use of European species has undoubtedly been stimulated by the weakness of the euro and relative strength of the dollar. Against this background production of sawn hardwood increased by over 1 million m^3 in Europe, up by 8.1%, although 596,000 m^3 of this increase was produced by France, partially from clearing up beech and oak from the December 1999 storms. The increased availability of French beech led to a gradual price decline, at a rate that was less than expected – largely buoyed up by sales to China (graph 7.4.1). Nevertheless prices for French beech remain above the index level of 110 in 1997 and 1998.

GRAPH 7.4.1

French and German beech sawnwood prices, 1995-2001



Sources: Statistisches Bundesamt; Centre d'Etudes de l'Economie du Bois, 2001.

Imports of sawn hardwood continued to rise in EU/EFTA countries, by 0.9 million m^3 (up 11.1%) to 9.2 million m^3, and although they rose by 20% in the other European countries imports there remained less than 1 million m^3. Owing to storm-generated sawnwood, exports from EU/EFTA increased by almost 20%, they jumped by 18% from the other European countries, representing a rebound towards former levels.

Most European sawmills and traders have been looking for a recovery in oak consumption, which suffered a loss of fashion in furniture during the 1998 and 1999 period. That return was partially signalled at the furniture shows of early 2001; however, many European traders await the ultimate stabilization of the euro – dollar exchange rate before they consider converting permanently from American to European oak for reasons of grading, consistent availability and specification of American oak. In other species such as hard maple, cherry and walnut the alternative supplies in Europe may prove to be more limited than those from the enormous resources in North America.

7.5 CIS market developments

Production in the Russian Federation was published last year as 3.85 million m^3 but has subsequently been revised downward to 2.47 million m^3 with new data submitted. Therefore the increase to 2.58 million m^3 now shown leaves Russian production well below the 1997 and 1998 production of just under 4 million m^3. There is some evidence reported that hardwoods, particularly high quality ash and oak, in eastern Russia are being illegally logged and exported as logs to China, Japan and the Republic of Korea, which might possibly account for some reduction in sawnwood production. There is strong demand for Russian oak in Japan by sawmills in need of cheap raw material in their attempt to survive the dramatic downturn in Japanese consumption of all wood products and the competition from Chinese imports. Generally the Japanese find the grain characteristics and colour of Russian oak similar to their own Hokkaido oak and thus easy to sell. There has also been a noticeable interest from European importers and users of oak for sawn supplies from Ukraine, but so far prices are discounted by the perception of unreliable shipment and grade.

7.6 Future demand trends in the UNECE region

The forecasts proposed by the Timber Committee for 2001 already appear to be optimistic for production and exports throughout the region, and imports may fall as most national economies slow. The economic and consumer climate throughout the UNECE region is softening, and construction and furniture consumption has been showing negative signals since the second quarter of 2001. FEP warns of difficulty for the European flooring industry to maintain the levels of growth in 2001 that were achieved in 1999 and 2000 The final outcome of the year in progress will also probably prove to be significantly different within each of the three main areas.

In EU/EFTA production may in fact remain unchanged from 2000 with increases in oak and reductions in beech. Net trade may remain in line with the forecasts on the basis of reduced exports outside EU/EFTA and reduced imports as the economy slows further. In this case apparent consumption might only fall slightly. Elsewhere in Europe production and exports may increase in line with each other but apparent consumption would remain largely unchanged. Whereas the United States will undoubtedly experience a fall in production and some fall in exports that would give a significantly reduced apparent consumption between 5% and 10%.

One of the most vital consuming industries for sawn hardwood throughout the UNECE region is furniture, an area experiencing rapid change which may be structural. United States manufacturers are under increasing threats from furniture imports from low-cost countries, mainly in Asia, which are enjoying the benefits of a strong dollar. Western European furniture manufacturers are facing ever-increasing competition from more competitive eastern European producers. Along with the bankruptcies in France mentioned previously, German producers

continue to source finished and semi-finished products from their eastern neighbours, which adversely affects its EU trading partners. The United Kingdom furniture trade has largely succumbed to imports and even the previously buoyant Spanish producers are feeling the pressure of a contracting market. This shift may give rise to some increased international trade in sawn hardwood, which compensates for the loss of some local market, but in the process substitute wood and non-wood products, and different species, could threaten the share of temperate hardwoods produced in the UNECE region.

Fashion will continue to play its role. In the flooring sector the fashion for hardwood flooring is likely to grow but competition for market share will intensify. In the United States domestic strip flooring shipments grew by 12% in 2000, and by 152% between 1991 and 2000. The fashion for oak in wine and spirits will certainly hold up the demand for American and European white oak stave material. In furniture, light-coloured hardwoods are still fashionable in interior joinery and top of the range real wood designer furniture. The only casualty of fashion, oak, is still struggling to regain its position in the furniture market, made all the more difficult by the dynamics of the market referred to. Nevertheless the efforts of the French oak industry campaign *J'ai choisi le chêne* [I chose oak] appear at least to have underpinned some demand for oak. Beech still commands a place among manufacturers for its physical properties rather than by its natural grain and colour, although the German timber trade has made some good progress, through promotion, in opening the eyes of designers to the characteristics and appeal of lower grades. Against all of these species the use of birch sawnwood and veneer has been championed by the influential IKEA group in its range of home furnishing products. Such are some of the consumer elements of a market that ultimately depends as much on aesthetics as on prices and structural grades.

The conclusion at this early stage for sawn hardwood in 2001 is one of reduced consumer demand and production in the United States, with slightly reduced demand in much of Europe leading to lower levels of apparent consumption than the peak year of 2000 throughout the ECE region as a whole.

Chapter 8
Wood-based panels – supply, trade and consumption[1]

Highlights

- Panel markets in the UNECE region out-performed all other forest products market sectors in 2000.
- A price collapse hit the structural panel markets in North America and Europe in 2000.
- In the EU/EFTA countries, total consumption of wood-based panels increased 6.7% to a record high of 45.2 million m^3, confirming the recovery of the sector.
- In the Russian Federation, consumption of wood-based panels was up by 19.3% and reached 3.6 million m^3, confirming the recovery of the sector.
- Although North American structural panel prices staged a rebound in the spring of 2001, the economic recovery of the sector is overshadowed by sluggish demand and further capacity additions.
- In 2000 and 2001, a strong dollar disadvantaged North American structural panel exporters *vis-à-vis* European and South American suppliers.
- High profits in oriented strand board (OSB) in the past and predictions of further gains in market share *vis-à-vis* plywood have induced North American and European interests to build more capacity, fostering conditions of oversupply.
- OSB market share in North American commodity sheathing (for roofs, floors, and walls in homes) passed the 75% level at the expense of softwood plywood.
- Future market growth of OSB in North America is increasingly predicated on gains in residential remodelling, do-it-yourself purchases and other non-housing applications.
- European OSB production rose about 20% from 1999 and four more plants are being built.
- Turnover in capacity is occurring in all branches as newer, high-capacity plants drive out older, smaller operations with higher unit costs.
- European particle board markets are recovering as new capacity is absorbed and several older plants are phased out.
- European production of MDF rose by 15% in 2000, but capacity growth will ease in 2001 following major expansions.

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Secretariat introduction

The secretariat would like to thank Mr. Henry Spelter for working together with us for two weeks in Geneva on this chapter, as well as helping us on other chapters too. Mr. Spelter is a specialist in forest products markets in the Timber Demand and Technology Assessment Research Work Unit at the Forest Products Laboratory of the USDA Forest Service. This is the second time that he has contributed to this chapter.

The secretariat would like to express our appreciation to the USDA Forest Service, and notably Mr. Val Mezainis, Director of International Programs, for facilitating Mr. Spelter's consultancy. Such collaboration has proved to be mutually beneficial in the past and continues to be so this year too.

While the basis for this chapter is UNECE/FAO statistics, considerable material in the chapter came from two trade associations, the Composite Panel Association (CPA) in the United States and the European Panel Federation (EPF). We rely on contributions from these important sources.

This chapter discusses recent trends in wood-based panels markets in the Commonwealth of Independent States (CIS), Europe (EU/EFTA and "other Europe") and North America (United States and Canada). The analysis focuses on particle board, medium density fibreboard (MDF) and structural panels, e.g. softwood plywood and oriented strand board (OSB).

8.1 Overview

The main factor influencing demand for panels in North America has been the slowdown in economic growth owing to interest rate increases in the United States in 2000. Overall economic growth has slowed, but sectors differ: housing and related manufacturing sectors have held up relatively well while general manufacturing has fallen into a recession. On the supply side, major capacity additions to OSB weighed on markets for structural panel while increases in particle board capacities caused an oversupply in non-structural panels. This combination of events upset the existing balance of market forces as supply increased faster than demand.

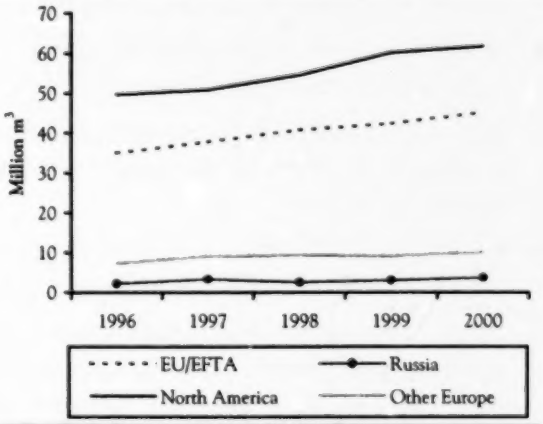
The strengthening of the dollar in comparison with the currencies of Europe and Japan affected panels as North American producers became less competitive in international markets and lost ground to competitors in Europe and South America. These shifting relationships have caused dislocations resulting in rationalizations as the North American industry is forced to align its capacity to the changing configuration of its markets. Overall consumption of wood-based panels in North America increased in 2000 to 61.7 million m^3, an increase of 2.5%, compared to the 10.4% increase of 1999 (graph, 8.1.1, table 8.1.1).

In Europe economic activity of end use sectors was vigorous, even though it did not reach the levels expected. Consumption of panels increased by 2.4% to 55.3 million m^3. In the EU/EFTA group of countries, which represents 82% of total consumption, the increase was 6.7%. Consumption growth was stronger in the "Other Europe" group of countries, 12.2% as a result of new capacity in central and eastern European countries.

In the Russian Federation consumption of panels was up by 19.3% and reached 3.6 million m^3, the highest level since the early 1990s, confirming the recovery of the sector. Exports of panels also increased significantly in 2000 as a result of the weakened ruble, which improved competitiveness in world markets.

GRAPH 8.1.1

Apparent consumption of wood-based panels, excluding veneer sheets, 1996-2000



Source: UNECE/FAO TIMBER database, 2001.

8.2 Plywood

In 2000 consumption of plywood in EU/EFTA countries went up by 6% and amounted to 6 million m^3. Production also went up, but not by as much as imports, which increased by 10% (table 8.2.1 and graph 8.2.1). In the "Other Europe" group of countries and in the Russian Federation, consumption also increased significantly by 35.5% to 0.85 million m^3 and 26% to 0.52 million m^3, respectively.

In North America, however, recorded plywood consumption was down from 1999 and amounted to 20.2 million m^3 as a result of a drop in softwood plywood production. Real consumption may, however, be somewhat higher as the statistics received did not include Canada's hardwood plywood production.

TABLE 8.1.1

Apparent consumption of wood-based panels, excluding veneer sheets, in the UNECE region, 1996-2000
(Million m³)

	1996	1997	1998	1999	2000	% of total	
						1996	2000
EU/EFTA							
Particle board and OSB	24.09	25.53	26.68	27.90	29.28	68.8	64.8
Plywood	5.43	5.77	5.80	5.74	6.08	15.5	13.5
Fibreboard	5.48	6.47	8.26	8.73	9.85	15.7	21.8
Total	35.00	37.77	40.74	42.37	45.21	100.0	100.0
Change on previous year							
– Volume		2.77	2.97	1.63	2.84		
– %		7.9	7.9	4.0	6.7		
OTHER EUROPE							
Particle board and OSB	5.46	6.61	6.49	6.43	7.04	75.5	69.7
Plywood	0.46	0.63	0.69	0.62	0.84	6.4	8.3
Fibreboard	1.31	1.72	2.05	1.95	2.22	18.2	22.0
Total	7.23	8.96	9.24	9.01	10.10	100.0	100.0
Change on previous year							
– Volume		1.73	0.27	-0.23	1.10		
– %		24.0	3.1	-2.5	12.2		
RUSSIAN FEDERATION							
Particle board and OSB	1.43	2.30	1.71	2.06	2.45	64.7	67.7
Plywood	0.35	0.37	0.40	0.41	0.52	15.7	14.3
Fibreboard	0.43	0.64	0.50	0.56	0.65	19.6	18.0
Total	2.21	3.31	2.60	3.03	3.62	100.0	100.0
Change on previous year							
– Volume		1.10	-0.71	0.43	0.58		
– %		49.8	-21.4	16.4	19.3		
NORTH AMERICA							
Particle board and OSB	22.04	24.01	26.50	31.24	31.89	44.4	51.7
Plywood	20.52	19.69	19.87	20.53	20.20	41.3	32.7
Fibreboard	7.09	7.05	8.16	8.44	9.62	14.3	15.6
Total	49.65	50.75	54.53	60.21	61.71	100.0	100.0
Change on previous year							
– Volume		1.10	3.78	5.68	1.50		
– %		2.2	7.4	10.4	2.5		

Source: UNECE/FAO TIMBER database, 2001.

An improvement in the UNECE/FAO collection of statistics has made it possible to analyse developments in the plywood sector separately for softwood and hardwood plywood, and consequently for structural and non-structural uses (see below, sections 8.2.1 and 8.2.2).

8.2.1 *Softwood plywood*

In the evolutionary cycle of products, softwood plywood, used primarily in construction, can be thought of as being past its peak. Most of the world capacity is in North America where its roots date back nearly 100 years.

Within North America, the western branch of the industry, located primarily in the Pacific Northwest and based on Douglas fir, is in extended decline owing to reduced availability of large diameter timber and new product competition over the past three decades from OSB and plastics (i.e. styrofoam and isocyanurate foam boards that are non-structural and must be used in combination with structural panels or separate bracing at building corners to provide structural rigidity). Current capacity stands at about 5 million m³, about half of its peak in the 1970s (*APA-The Engineered Wood Association*). Much of this capacity is now focused on speciality products (e.g. sanded, siding, industrial grade

TABLE 8.2.1

Plywood balance in the UNECE region, 1996-2000

(Million m³)

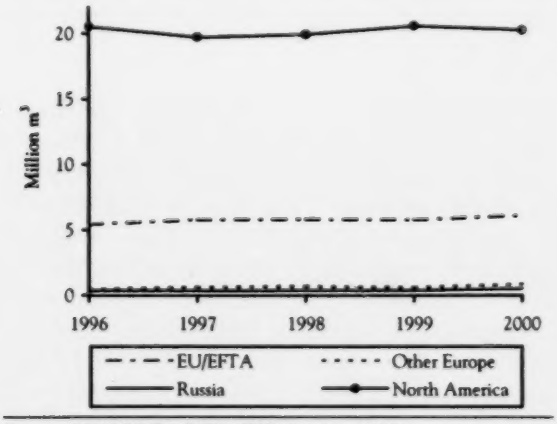
	1996	1997	1998	1999	2000	Timber Committe estimate for 2001*
EU/EFTA						
Production	2.94	2.96	3.19	3.25	3.27	3.35
Imports	4.17	4.66	5.11	5.03	5.53	5.51
Exports	1.68	1.86	2.50	2.54	2.71	2.80
Net trade	-2.49	-2.81	-2.61	-2.49	-2.82	-2.72
Apparent consumption	5.43	5.77	5.80	5.74	6.08	6.07
OTHER EUROPE						
Production	0.88	0.92	0.87	0.93	0.96	0.99
Imports	0.33	0.36	0.37	0.42	0.46	0.46
Exports	0.74	0.65	0.55	0.73	0.58	0.59
Net trade	0.41	0.29	0.18	0.31	0.12	0.13
Apparent consumption	0.46	0.63	0.69	0.62	0.84	0.85
RUSSIAN FEDERATION						
Production	0.67	0.88	1.10	1.32	1.48	1.55
Imports	0.06	0.04	0.03	0.00	0.01	0.01
Exports	0.38	0.56	0.74	0.91	0.97	1.02
Net trade	0.32	0.52	0.71	0.91	0.96	1.01
Apparent consumption	0.35	0.37	0.40	0.41	0.52	0.54
NORTH AMERICA						
Production	20.37	19.38	19.22	19.48	19.21	19.20
Imports	1.64	1.85	2.24	2.72	2.67	2.72
Exports	1.49	1.54	1.59	1.67	1.68	1.70
Net trade	-0.15	-0.31	-0.65	-1.05	-0.98	-1.02
Apparent consumption	20.52	19.69	19.87	20.53	20.20	20.22

* = The Timber Committee's forecast trend for 2000 to 2001, made at the October 2000 session, was applied to the 2000 figure.

Source: UNECE/FAO TIMBER database, 2001.

GRAPH 8.2.1

Apparent consumption of plywood, 1996-2000



Source: UNECE/FAO TIMBER database, 2001.

panels and concrete forming) instead of the traditional commodity sheathing that was the sector's mainstay in previous decades.

The southern branch of the industry, based on pine, has also begun to shrink for much the same reasons. In 2000 and 2001, a spate of rationalizations resulted in the closing or conversion (to hardwood plywood) of seven plants leaving a residual capacity of 10.5 million m³, about 85% of its former high point. Canadian softwood plywood capacity has followed similar trends. Its present 2 million m³ level is about 80% of its former high.

Production of softwood plywood declined by 1.6% to 17.4 million m³ in North America in 2000 (table 8.2.2). This was in response to slightly weaker housing construction and more pronounced weakness in manufacturing. Plywood capacity utilization was at 95%. In 2001, with continued economic sluggishness through the first half, a further decline is likely. Production is on course to be 1 million m³ lower in 2001, reflecting also

the capacity attrition described above. Production of softwood plywood will have declined by over 4 million m^3 (up 1%) since 1990.

Production by EU/EFTA countries in Europe was estimated at 2.3 million m^3 while in eastern Europe the estimated output was close to 0.4 million m^3 but up 12%. In the Russian Federation, 124,000 m^3 were produced,

TABLE 8.2.2

Production and trade of softwood plywood in the UNECE region, 1997-2000
(1,000 m^3)

	1997		1998		1999		2000		Change 1999 to 2000	
									Volume	%
PRODUCTION										
EU/EFTA	1,859		2,134		2,233		2,253		21	0.9
of which:										
Finland	330	P	454		578		578		0	0.0
Germany	448	E	428	E	364	E	355		-9	-2.5
Other Europe	376		361		383		429		47	12.2
of which:										
Czech Republic	41	P	38		35		56		21	60.0
Bulgaria	23	E	23	E	44	E	52		8	18.2
Russian Federation	120	P	102		86		124		38	44.2
North America	17,725		17,481		17,695		17,409		-287	-1.6
Canada	1,828	E	1,749	E	1,928		1,944		15	0.8
United States	15,897	E	15,732		15,767		15,465		-302	-1.9
EXPORTS										
EU/EFTA	1,052		1,330		1,273		1,461		188	14.7
of which:										
Finland	257	P	383		510		546		36	7.1
Germany	152	E	166	E	160	E	235	E	75	46.9
Other Europe	138		150		344		185		-160	-46.3
of which:										
Czech Republic	42	P	43		44		64		20	45.5
Romania	21	P	22		23		36		13	57.4
North America	1,154		1,173		1,207		1,149		-58	-4.8
Canada	294	P	466		642		582		-60	-9.3
United States	860	P	707		565		567		2	0.4
IMPORTS										
EU/EFTA	3,012		3,198		2,689		2,975		286	10.6
of which:										
Germany	1,095	E	1,105	E	1,021	E	1,105	E	84	8.2
United Kingdom	396	P	400		403		451		48	11.9
Other Europe	142		117		104		122		18	17.5
of which:										
Slovakia	20	P	18		17		20		3	17.6
North America	84		294		672		615		-57	-8.5
Canada	84	P	108		142		128		-14	-9.9
United States	0	P	186		530		487		-43	-8.1

Source: UNECE/FAO TIMBER database, 2001.

which represents an increase of 44% from 1999 and returns production to the 1997 level.

Customary product trade flows have changed in recent years. North America traditionally supplied large amounts of plywood to Europe and Japan but since 1997 the volume of this trade has shrunk considerably. The United States softwood plywood exports fell by 59% between 1997 and 2000, while Canadian exports to countries other than the United States were down 55%. Total Canadian exports slowed by a more moderate 13% thanks to a six-fold sales increase to the United States.

Several factors have caused this reshuffling. Chief among them was the appreciation of the dollar. The value of the euro against the dollar has fallen by 30% since its arrival in 1999. This has severely hurt United States and Canadian exporters (since the Canadian dollar has largely kept pace with its United States counterpart). Competitive plywood made in Finland, Germany, France, Sweden and the Czech Republic benefited (*EUWID*). At the same time, the rapid expansion of the plywood industry in Brazil, based on plantation elliotis pine (*Pinus elliottii*) (overall exports reached 1.4 million m^3 in 2000), allowed producers there to take a large share of the European plywood trade. Plywood based on elliotis pine is now well established in Europe as an alternative to United States southern pine plywood. Weak Japanese demand and growing European production of OSB have further hurt North American plywood exporters' chances.

North American structural panel prices fell hard in the second half of 2000 and early 2001 (graph 8.2.2).

GRAPH 8.2.2

North American structural panel composite prices, 1994-2001

Source: *Random Lengths Yardstick*, 2001.

This reflected lower demand caused by a slight weakening of United States home construction and a sharper fall in United States manufacturing. Increasing production of OSB from new capacity coming on stream did not help to correct the supply demand imbalance. These trends caused many mills to close or at least to temporarily curtail production. As supply was being reduced in this manner, demand made a seasonal recovery with the ending of the colder than normal North American winter. Consequently, prices rebounded in the spring of 2001. However, the likelihood of a sustained price rise in 2001 is modest because of more OSB capacity. Indeed, further closure of plywood capacity is likely in the next five years as considerable investment in OSB is scheduled, both in Europe and North America.

8.2.2 *Hardwood plywood*

Production of hardwood plywood in the United States was up 1.2% from 1999 to 1.8 million m^3. Some 10% of this amount is exported, mainly to Canada (table 8.2.3). United States imports showed little change from 1999 to 1.9 million m^3. Imports originated mainly in Indonesia, Canada, Malaysia, the Russian Federation and Brazil. In Europe production dropped 1.2% from 1999 to 1.5 million m^3. Exports of Finnish and Latvian birch plywood as well as from the Russian Federation to the United Kingdom and Germany showed some increases. Production of hardwood plywood in the Russian Federation has increased significantly since 1995, and in 2000 it represented 91.6% of total plywood production.

Tropical plywood exports from ITTO member countries in 2000 remained at 1999 levels, just under 12 million m^3, 1.3 million m^3 less than the peak amount exported in 1997. Indonesia was still the major exporter with 7.8 million m^3, followed by Malaysia, 3.2 million m^3 and Brazil, 574,000 m^3. In 2000, European imports of tropical plywood were just under 1.7 million m^3. The main European importers are the United Kingdom, Germany and the Netherlands. Most of Europe's imports came from Indonesia, Malaysia, and Brazil. Indonesian and Malaysian plywood prices have, in general, declined steadily since 1996, and real price levels were still 35 to 50% below the highs of 1996. Tropical plywood imports are facing increased competition from softwood plywood and other panel products (ITTO).

The Indonesian plywood industry is running at about 50% of its production capacity and is facing increased production costs and higher domestic taxes. Its main export markets in Asia are depressed and its products are facing increased competition in world markets. This outlook is expected to continue in 2001. However, prospects are good for exports of furniture quality plywood which depends mostly on imported logs, but also veneer, mainly oak and cherry from the United States and other

TABLE 8.2.3

Production and trade of hardwood plywood, including tropical, in the UNECE region, 1997-2000
(1,000 m³)

	1997		1998		1999		2000		Change 1999 to 2000	
									Volume	%
PRODUCTION										
EU/EFTA	1,100		1,058		1,018		1,013		-5	-0.5
of which:										
Finland	578	P	538		498		498		0	0.0
France	405	P	403		401		397		-4	-0.9
Other Europe	546		509		548		534		-14	-2.5
of which:										
Poland	167		133		167		169		2	1.2
Latvia	145	P	150		155		156		1	0.9
Czech Republic	65	P	70		75		59		-16	-21.3
Lithuania	40	P	36		32		38		6	19.4
Russian Federation	764	P	1,000		1,238		1,356		118	9.5
North America	1,657		1,736		1,784		1,806		22	1.2
United States	1,657	E	1,736	E	1,784		1,806		22	1.2
EXPORTS										
EU/EFTA	804		1,168		1,271		1,248		-23	-1.8
of which:										
Finland	468	P	449		429		460		31	7.2
Belgium	...		...		314	E	271	E	-43	-13.7
Other Europe	511		401		385		393		9	2.3
of which:										
Latvia	266	P	138		126		125		-1	-1.0
Poland	68		67		66		79		13	20.0
Russian Federation	401	P	627		913		973		60	6.6
North America	387		415		461		532		71	15.4
Canada	263	P	289		314		384		70	22.3
United States	124	P	126		147		148		1	0.7
IMPORTS										
EU/EFTA	1,650		1,909		2,346		2,551		205	8.7
of which:										
United Kingdom	571	P	570		569		590		21	3.7
Belgium	...		...		366		327		-39	-10.7
Other Europe	219		258		313		333		20	6.6
of which:										
Slovakia	66	P	69		73		63		-10	-13.7
Poland	62		58		60		62		2	3.3
Russian Federation	44	P	25		3		11		8	307.4
North America	1,764		1,943		2,044		2,050		6	0.3
Canada	172	P	165		80		102		22	27.5
United States	1,592	P	1,778		1,964		1,948		-16	-0.8

Source: UNECE/FAO TIMBER database, 2001.

species from Africa. Indonesian imports of temperate hardwood logs from the United States in 2000 amounted to 29 million dollars and represented 85% of total veneer log imports.

8.3 Oriented strand board (OSB)

Capacity of OSB in North America continues to grow with the recent or imminent arrival of several large-scale plants. Three came on stream in 2000, followed by two more in 2001 (table 8.3.1). At least five more are planned for 2002 and 2003. Additionally, several upgrades at existing plants boosted or will boost capacity. Realization that the market is being oversupplied has resulted in the cancellation (e.g. Boise Cascade in Chile) or postponement (Louisiana Pacific in Quebec) of several large-scale projects, but others have come along to take their place leaving intact the prospects for significant capacity expansion.

In Europe, two more plants began operations in 2000. That, along with upgrades to two existing plants in Scotland and France, sharply boosted European capacity to around 2 million m^3, up about 67% for the year (table 8.3.2). Four additional projects in 2001 will add about another million m^3. Further plans beyond 2001 are rumoured, but their status is uncertain. Some sense that potential investors are beginning to grasp the magnitude of the capacity build-up and are adjusting their plans accordingly is found in a number of projects that were discussed but have now been shelved, including plants in Wales (Kronospan) and Germany (Kunz and Pfleiderer). Hornitex, the large particle board and MDF producer, which entertained notions of building an OSB plant at Beeskow, Germany, filed for bankruptcy protection in mid-2001.

Along with the new capacity, production also jumped on both continents setting new record levels. In North America, OSB production surpassed 18 million m^3, up 2.3% from 1999 (graph 8.3.1 and table 8.3.3). The increase was less than the growth in capacity, reflecting difficult market conditions in the second half of 2000 that necessitated temporary or extended curtailments at over

TABLE 8.3.2

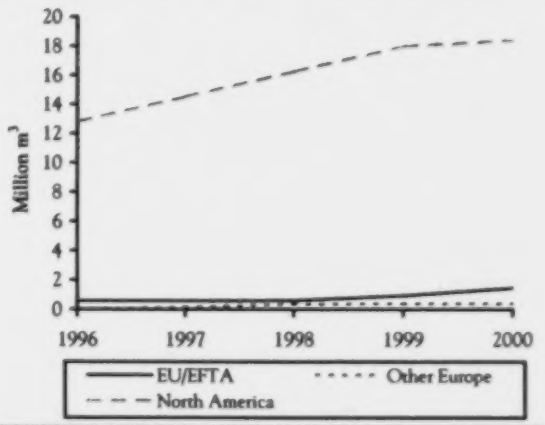
Recent and planned European OSB capacity additions, 2000-2001
(1,000 m^3)

Company	*Location*	*2000*	*2001*
Kronofrance	France	350	
Egger	Germany	360	
Kronospan	Bulgaria		100
Koronotex	Germany		385
Interlin	Belgium		250
Sonae/Glunz	Germany		350

Source: United States Forest Products Laboratory, 2001.

GRAPH 8.3.1

Production of oriented strand board, 1996-2000



Source: UNECE/FAO TIMBER database, 2001.

TABLE 8.3.1

Recent and planned North American OSB capacity additions, 2001-2003
(1,000 m^3)

Company	*Location*	*2000*	*2001*	*2002*	*2003*
Weyerhaeuser	Saskatchewan	500			
Footner	Alberta	800			
Nexfor	South Carolina	450			
Georgia Pacific	Arkansas		360		
Nexfor	Alabama		450		
Chatham	New York			440	
Louisiana Pacific	Quebec			550	
Ced'Or	Quebec			320	
Tolko	Saskatchewan				550
Louisiana Pacific/Slocan	Saskatchewan				625

Source: United States Forest Products Laboratory, 2001.

TABLE 8.3.3

Production and trade of OSB in the UNECE region, 1997-2000

(1,000 m³)

	1997		1998		1999		2000		Change 1999 to 2000	
									Volume	%
PRODUCTION										
EU/EFTA	573		583		923		1,425		502	54.4
of which:										
Germany	0	E	0	E	0	E	325	E	325	...
United Kingdom	223	P	223		223		280	E	57	25.6
France	100	E	100	E	100	E	270	E	170	170.0
Other Europe	151		360		365		365		0	0.0
of which:										
Poland	146		350		350		350		0	0.0
Romania	5	P	10		15		15		0	0.0
North America	14,503		16,210		17,971		18,384		414	2.3
Canada	4,908	P	6,274		7,694		7,847		153	2.0
United States	9,595	P	9,936		10,277		10,537		260	2.5
EXPORTS										
EU/EFTA	476		530		423		409		-14	-3.3
of which:										
Ireland	150	E	186	E	186		191		5	2.9
United Kingdom	124	P	129		135		115		-20	-14.8
Other Europe	208		298		382		450		69	18.0
of which:										
Poland	39		170		290		328		38	13.1
Slovakia	86	P	57		28		86		58	207.1
North America	5,196		6,041		6,887		7,091		204	3.0
Canada	5,177	P	5,952		6,727		6,932		205	3.0
United States	19	P	89		160		159		-1	-0.6
IMPORTS										
EU/EFTA	698		905		1,063		1,343		279	26.3
of which:										
Spain	100	E	262		275		501		227	82.7
Germany	108	P	200		292		293		1	0.3
Netherlands	82	P	98		111		111	R	0	0.0
United Kingdom	153	P	110		67		72		5	7.5
Other Europe	119		133		155		292		137	88.7
of which:										
Turkey	1	P	2		3		113		110	3666.7
Slovakia	17	P	43		69		64		-5	-7.2
North America	4,991		5,811		6,636		6,864		228	3.4
Canada	0	P	59		123		110		-13	-10.6
United States	4,991	P	5,752		6,513		6,754		241	3.7

Source: UNECE/FAO TIMBER database, 2001.

25 existing plants. In Europe, production is estimated at 1.79 million m^3, up 39% from 1999. Again, the production increase lagged behind the jump in capacity owing to normal start-up problems associated with new plants.

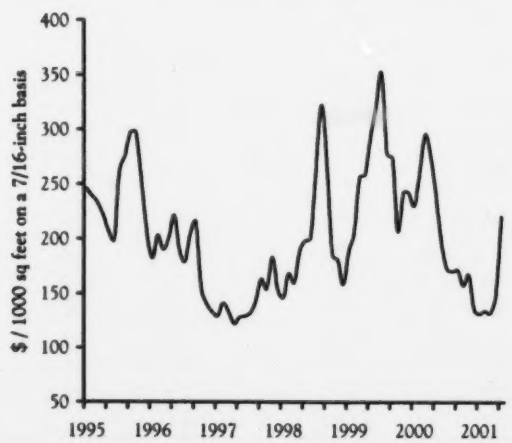
North American production is largely contained within the continent. The small amounts that were exported to Europe have been all but erased by the strong dollar and growing domestic European production. Japan, which is an important market for some western Canadian mills, reduced its imports of Canadian OSB by 14% in 2000. The high exchange rate of the dollar also helped European exporters.

Exports from Germany and France to the United States, on the other hand, showed an increase as the two new producers targeted a part of their output to that market. As European capacity grows, this flow, which is relatively small at present, can be expected to increase because the European market for structural panels is not as well developed as North America's. The latter provides a ready and reliable outlet, though not necessarily a lucrative one as prices weaken when the market is oversupplied.

Prices for OSB in North America exhibited extreme swings during 2000 and early 2001 (graph 8.3.2). From around $300 per 1,000 ft^2 in March, they fell to around $130 per 1,000 ft^2 by year end. In the spring of 2001, a rally pushed prices back above 200 dollars before renewed weakness pulled them back to an intermediate level. Stagnant North American demand in 2001 and higher capacity will keep prices under pressure.

GRAPH 8.3.2

United States OSB prices, 1995-2001



Source: *Random Lengths Yardstick*, 2001.

Over the last three decades, demand for structural panels (softwood plywood and OSB) in North America has grown by 3% per year, but even that modest rate of growth will not be achieved in 2001. OSB has grown faster by taking an ever-increasing share, but in sub-markets, such as the large residential sheathing market at 75%, the OSB share is approaching saturation. With the planned capacity for the coming two years exceeding prospective demand growth, pressure on prices is likely to continue until closures of redundant facilities, either plywood or OSB, close the demand-supply gap.

OSB is undeniably the wood product success story of the past two decades, but the product is now increasingly well advanced in its life cycle. North American OSB producers also hope to emulate their success in sheathing in other areas, such as concrete forming, do-it-yourself markets, siding, and industrial uses. But past attempts at market broadening have had mixed success. Some have resulted in outright disaster involving hundreds of millions of dollars in liabilities owing to product failure. To avoid that fate, the mechanical properties (durability, dimensional stability, strength, stiffness) and appearance of speciality products have to be upgraded. But that entails higher costs, which erases much if not all of the cost advantage that propelled OSB over plywood in the first place. Thus, prospective producers should carefully plan their marketing strategy so as not to be caught in commodity markets that are seriously over-supplied and subject to endemic price weakness.

In Europe also, prices weakened following the start-up of the two new facilities in France and Germany. The 2000 and 2001 construction downturn in Germany made absorption of the new supply difficult. As in North America, the prospective start-up of substantial new capacity and the gearing up to full potential of the recent additions becloud prospects for an imminent upturn. Even a strong economic surge may not be sufficient to reverse the OSB slump as the amount of capacity overhang greatly exceeds prospective requirements.

8.4 Particle board

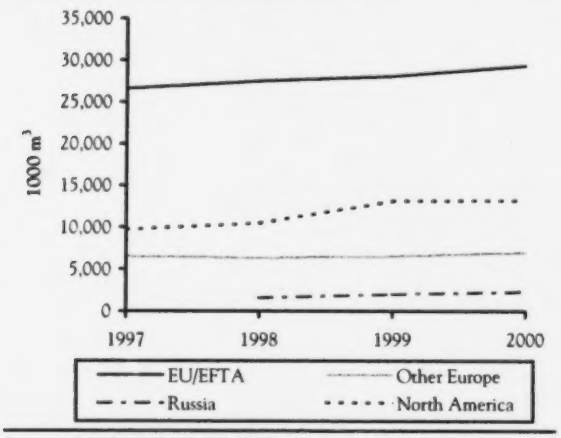
Production capacity for particle board in North America stood at 13.8 million m^3 at the end of 2000 and is expected to increase by 4% to 14.4 million m^3 by the end of 2001 (Composite Panel Association (CPA)). Production capacity of particle board in Europe, on the other hand, is expected to stabilize in 2001 at 36.6 million m^3 as incremental capacity changes in a few mills offset closures of at least four smaller plants in Germany, Denmark and Cyprus (European Panel Federation (EPF)).

Production trends followed an upward path on both continents, and as in the case of OSB, set new record

levels. In North America, production rose marginally despite the economic sluggishness and reached 13.1 million m^3. In Europe, a 4.8% increase was registered with production at 36.3 million m^3 (graph 8.4.1 and table 8.4.1). Production rose more rapidly (6.6%) in the "other Europe" countries, where output in Poland was up 14.4% to 2.6 million m^3 as new capacity came on stream.

GRAPH 8.4.1

Production of particle board, excluding OSB, 1997-2000



Source: UNECE/FAO TIMBER database, 2001.

In the Russian Federation production also increased significantly, by 16.9% from 1999 to 2000 to reach 2.3 million m^3.

As in the case for OSB, most of the particle board trade on each continent stays within the confines of the region. United States imports and exports to countries other than Canada are small and roughly offset each other. Canadian trade with countries other than the U.S is negligible.

Within Europe, the major net importing countries are the United Kingdom (1.7 million m^3), the Netherlands (0.9 million m^3), and Denmark (0.4 million m^3). Major exporting countries are Belgium (1.2 million m^3), Austria (1.1 million m^3), and Germany (0.9 million m^3). Germany is particularly notable because it went from being a net importer in 1996 and 1997 to a major exporter now, a change attributed to sluggish German construction activity (EPF). Additionally, some European producers export significant volumes to southeast Asia.

Prices for particle board in North America have cycled down since early 2000 and are nearing their lows in both 1996 and 1998 (graph 8.4.2). Expanded capacity from two new lines in Canada and a Willamette plant in South Carolina will need a year or more to be absorbed.

GRAPH 8.4.2

Particle board prices in the United States and Germany, 1998-2001

Sources: *Random Lengths Yardstick* and *Holz Journal*, 2001.

The bankruptcy filing by Hornitex places its 700 million m^3 capacity expansion in South Carolina in question and the abandonment of such a large project would considerably ease the burden on other suppliers. If the expected general economic recovery in 2002 and 2003 occurs, a gradual strengthening in prices can be expected. The extent of the rebound will also depend on how many of the older particle board lines will be closed. Upcoming clean air regulations in the United States may force closure of some older plants as the considerable expense involved in emissions upgrades may not be justified in an environment where large, new plants are most efficient.

European prospects depend on an economic rebound that has been slow to materialize. Expected forthcoming interest rate cuts by the European Central Bank and signs of improved German industrial activity bode well for demand in 2002, while the absence of major new capacity plans is a plus for price prospects. Indeed the benchmark German price index for particle board has been trending up in the past two years. However, rising costs for adhesives and energy, as much if not more than market fundamentals, may be responsible for this, which, in any event, leaves prices below their levels of the mid-1990s.

8.5 Fibreboard

Apparent consumption of fibreboard set record levels in the EU/EFTA countries in 2000. Reflecting developments in the MDF industry, it went up by 12.8% to 9.8 million m^3 (table 8.5.1 and graph 8.5.1). In the "Other Europe" countries and in the Russian Federation the trend was the same, consumption increased by 13.8% to 2.2 million m^3 and 16% to 0.65 million m^3, respectively.

TABLE 8.4.1

Production and trade of particle board, excluding OSB, in the UNECE region, 1997-2000

(1,000 m³)

	1997	1998	1999	2000	Change 1999 to 2000	
					Volume	%
PRODUCTION						
EU/EFTA	26,577	27,500	28,107	29,356	1,249	4.4
of which:						
Germany	9,152	9,375	9,491	9,904	413	4.4
France	3,275	3,482	3,587	3,544	-43	-1.2
Italy	2,750	2,950	3,070	3,200	130	4.2
Spain	1,815	1,880	2,203	2,783	580	26.3
Belgium	...	...	2,437	2,456	19	0.8
United Kingdom	1,952	2,063	2,216	2,281	65	2.9
Other Europe	6,540	6,348	6,540	6,971	431	6.6
of which:						
Poland	1,972	2,124	2,266	2,593	327	14.4
Turkey	1,728	1,525	1,643	1,650	7	0.4
Czech Republic	737	640	700	720	20	2.9
Hungary	...	440	457	484	26	5.8
Russian Federation	...	1,568	1,987	2,323	336	16.9
North America	9,721	10,475	13,132	13,142	10	0.1
Canada	3,053	2,347	2,436	2,517	81	3.3
United States	6,668	8,128	10,696	10,625	-71	-0.7
EXPORTS						
EU/EFTA	7,944	8,472	8,190	9,048	857	10.5
of which:						
Germany	1,532	1,658	1,586	2,090	504	31.8
Belgium	...	...	1,823	1,826	3	0.1
Austria	1,204	1,233	1,182	1,393	211	17.9
France	1,221	1,278	1,332	1,332	0	0.0
Other Europe	1,019	1,234	1,426	1,627	201	14.1
of which:						
Czech Republic	...	...	421	398	-23	-5.5
Poland	90	145	290	324	34	11.6
Russian Federation	...	97	95	142	47	49.5
North America	1,229	1,597	1,496	2,176	680	45.5
Canada	895	1,073	1,054	1,691	637	60.5
United States	334	524	442	485	43	9.7
IMPORTS						
EU/EFTA	6,104	6,699	6,420	6,612	193	3.0
of which:						
Germany	1,522	1,594	1,230	1,199	-31	-2.5
United Kingdom	966	1,043	996	1,092	96	9.6
Other Europe	1,024	1,182	1,182	1,489	307	26.0
of which:						
Poland	392	406	184	304	121	65.6
Romania	80	98	143	177	34	23.5
North America	1,219	1,647	1,885	2,764	879	46.6
Canada	262	219	469	620	151	32.2
United States	957	1,428	1,416	2,144	728	51.4

Source: UNECE/FAO TIMBER database, 2001.

TABLE 8.5.1

Fibreboard balance in the UNECE region, 1996-2000

(Million m³)

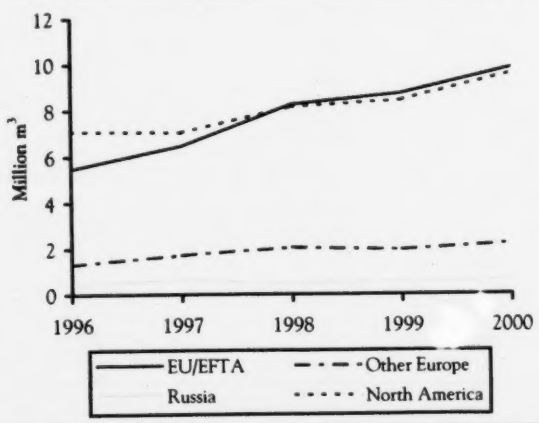
	1996	1997	1998	1999	2000	Timber Committee estimate for 2001*
EU/EFTA						
Production	5.36	6.40	8.09	8.60	9.58	10.06
Imports	2.99	3.93	4.53	4.69	4.99	4.94
Exports	2.87	3.86	4.36	4.56	4.71	4.77
Net trade	-0.12	-0.07	-0.17	-0.13	-0.27	-0.18
Apparent consumption	5.48	6.47	8.26	8.73	9.85	10.24
OTHER EUROPE						
Production	1.65	2.01	2.29	2.27	2.45	2.67
Imports	0.40	0.57	0.76	0.67	1.09	1.10
Exports	0.74	0.86	1.00	0.99	1.31	1.60
Net trade	0.34	0.29	0.24	0.31	0.22	0.50
Apparent consumption	1.31	1.72	2.05	1.95	2.22	2.17
RUSSIAN FEDERATION						
Production	0.59	0.75	0.62	0.78	0.89	0.91
Imports	0.02	0.06	0.05	0.04	0.04	0.04
Exports	0.17	0.17	0.17	0.26	0.28	0.28
Net trade	0.16	0.11	0.12	0.22	0.24	0.24
Apparent consumption	0.43	0.64	0.50	0.56	0.65	0.66
NORTH AMERICA						
Production	7.31	7.32	8.24	8.43	8.41	8.50
Imports	0.89	1.08	1.24	1.64	2.88	2.89
Exports	1.12	1.34	1.33	1.63	1.68	1.72
Net trade	0.22	0.27	0.09	-0.01	-1.21	-1.17
Apparent consumption	7.09	7.05	8.16	8.44	9.62	9.67

* = The Timber Committee's forecast trend for 2000 to 2001, made at the October 2000 session, was applied to the 2000 figure.

Source: UNECE/FAO TIMBER database, 2001.

GRAPH 8.5.1

Apparent consumption of fibreboard, 1996-2000



Source: UNECE/FAO TIMBER database, 2001.

8.5.1 *Hardboard*

Hardboard panels have reached maturity in their life cycle. The industry has been facing competition from thin MDF in furniture components and other industrial and commercial applications. Prospects for further developments in laminations are good. A mill closed in Latvia in 2000, owing to high production costs and depressed prices. Production in Europe and North America showed little change and remained around 1999 levels (table 8.5.2). Imports in Europe increased by over 9% owing to an active market in the United Kingdom. The Russian Federation increased production by 13.5% to almost 700,000 m³.

TABLE 8.5.2

Production and trade of hardboard in the UNECE region, 1997-2000

(1,000 m³)

	1997	1998	1999	2000	Change 1999 to 2000	
					Volume	%
PRODUCTION						
EU/EFTA	1,047	1,809	1,687	1,661	-27	-1.6
of which:						
Italy	100	800	610	550	-60	-9.8
Germany	295	309 P	336 P	336 R	0	0.0
France	124	115	115	115 R	0	0.0
Other Europe	751	864	743	726	-17	-2.3
of which:						
Poland	310	289	249	258	9	3.6
Estonia	13	177	170	177	7	4.4
Russian Federation	601	525	615	698	83	13.5
North America	1,670	1,377	1,361	1,379	18	1.3
Canada	342	108	136	141	5	3.7
United States	1,328	1,269	1,225	1,238	13	1.1
EXPORTS						
EU/EFTA	892	1,100	1,171	1,145	-26	-2.2
of which:						
Germany	283	453	557	557 R	0	0.0
Austria	89	107	131	131 R	0	0.0
Other Europe	443	475	516	462	-54	-10.5
of which:						
Poland	96	105	152	172	20	13.0
Estonia	129	170	153	65	-88	-57.7
Russian Federation	174	173	257	277	20	7.8
North America	666	376	403	436	33	8.2
Canada	276	221	244	283	39	16.0
United States	390	155	159	153	-6	-3.8
IMPORTS						
EU/EFTA	1,211	1,374	1,324	1,390	66	5.0
of which:						
United Kingdom	198	192	141	250	109	77.3
Germany	215	279	221	221 R	0	0.0
Denmark	141	52	137	150	13	9.5
Austria	60	99	131	131 R	0	0.0
Other Europe	188	394	338	426	88	26.0
of which:						
Czech Republic	33	39	71	116	45	63.4
Poland	48	81	62	65	3	5.3
North America	459	341	407	367	-39	-9.7
Canada	74	78	68 E	71 E	4	5.5
United States	385	263	339	296	-43	-12.7

Source: UNECE/FAO TIMBER database, 2001.

8.5.2 *Medium density fibreboard*

Capacity of MDF in North America was 4.7 million m^3 at the end of 2000 and is expected to increase by 9% to 5.1 million m^3 by 2001 (CPA). This is in spite of the closure of several mills in the western and southern United States as prices and profits shrank in the face of considerable expansion in the late 1990s. Production capacity of MDF in Europe also increased sharply in 2000, rising by 9% to 10.4 million m^3, but will settle down, following a decade of rapid expansion, to just a 1% increase in 2001 to 10.6 million m^3 (EPF).

Production increased by 1.8% in North America where it rose to 3.5 million m^3 in 2000 (table 8.5.3). In Europe, production almost reached 9 million m^3, up 15% from 1999, as new plants achieved targeted output efficiencies. Moreover, as the recent new capacity geared up to full utilization, production in Europe can be expected to experience another substantial surge in 2001. In the "other Europe" group of countries, production grew by 12.3% to 1.4 million m^3. Major increases were in Poland and Turkey by 9.4% and 21.3% respectively.

As in particle board, exports outside of North America account for an insignificant share of sales in Canada and the United States. Likewise, there is little imported from outside the region except during times of market tightness and high prices when generally imports respond quickly to fill any vacuum.

Europe is a net exporter of MDF, chiefly to Asia, but exports account for only about 7% of overall sales. Such exports nevertheless increased strongly in 2000 aided by economic recovery in Asia following the 1998 economic slump.

North American MDF prices increased slightly in 2000 as demand grew sufficiently, and enough older capacity was withdrawn, to absorb much of the supply overhang from previous expansions. New lines in Montana and Quebec in 2001 and another in North Carolina in 2002 assure additional supplies in the near future and a weakening of suppliers' positions.

Demand for MDF in Europe is growing and is expected to result in 2001 production exceeding 10 million m^3. Growth is supported by expansion of the laminate flooring market, a relatively new application for MDF. Thin MDF is also making inroads into traditional hardboard markets, which is a product hampered by high energy and effluent treatment costs. In all, supply and demand are expected to be in better balance in Europe in 2001 and 2002 than in North America.

8.5.3 *Insulating board*

Production of insulating board in Europe and North America remained at around 1999 levels. Among the major European producers, Poland was the only country to report major increases, which amounted to 20.7% (table 8.5.4)

8.6 Summary

In the overall scheme of structural panel markets, softwood plywood is declining and OSB is rising. In that sense the UNECE Timber Committee's initial estimates for stable United States plywood production appear now to have been optimistic as indications point to a 1 million m^3 decline for 2001. OSB production was correctly anticipated to increase, both in North America and Europe.

Particle board is generally a mature product in both North America and Europe while MDF is still gaining market share as new applications are developed and exploited and older products displaced by substitution. In that light, european production of MDF is now expected to pass the 10 million m^3 mark in 2001, exceeding the Timber Committee's more modest 9 million m^3 estimate. Particle board is likely to show modest gains, as expected.

The continued strength of the dollar is the major feature of international trade. This has resulted in the virtual elimination of United States softwood plywood from the European market by Brazilian elliotis pine and the potential for European OSB producers to export more of that product to America.

The outlook for North American panels consumption beyond 2001 is supported by interest rate reductions and tax cuts that should bolster North American economies. Pricing on the other hand may not reflect the strength, as substantial capacity expansions in the pipeline will keep supply abundant.

TABLE 8.5.3

Production and trade of medium density fibreboard in the UNECE region, 1997-2000

(1,000 m³)

	1997	1998	1999	2000	Change 1999-2000	
					Volume	%
PRODUCTION						
EU/EFTA	4,801	5,734	6,409	7,412	1,004	15.7
of which:						
Germany	1,495	1,566 P	2,032 P	2,500 E	468	23.0
Spain	490	969	970 E	975 E	5	0.5
France	416	636	691	971	280	40.5
Italy	600	650	650	715	65	10.0
United Kingdom	412	390	515	700	185	35.9
Other Europe	996	1,160	1,252	1,406	154	12.3
of which:						
Poland	294	637	702	768	66	9.4
Turkey	530	357	348	422	74	21.3
Czech Republic	66	69	70	75	5	7.1
Romania	4	1	16	38	22	137.5
Russian Federation	84	80	140	170	30	21.4
North America	2,691	3,192	3,394	3,360	-34	-1.0
Canada	289	712	893	859	-34	-3.8
United States	2,402	2,480	2,501	2,501	0	0.0
EXPORTS						
EU/EFTA	2,367	2,679	2,905	3,069	164	5.6
of which:						
Germany	434	513	533	533 R	0	0.0
France	354	328	509	509 R	0	0.0
Italy	435	342 P	331	463	132	39.9
Other Europe	203	281	195	310	115	58.9
of which:						
Poland	134	212	126	181	55	43.3
Czech Republic	49	50	49	58	9	18.4
Romania	4	1	1	31	30	3000.0
North America	466	723	978	994	16	1.6
Canada	338	552	774	747	-27	-3.5
United States	128	171	204	247	43	21.1
IMPORTS						
EU/EFTA	2,091	2,444	2,560	2,638	79	3.1
of which:						
United Kingdom	462	572	496	421	-75	-15.1
Other Europe	186	254	230	416	186	80.6
of which:						
Poland	49	60	68	124	56	83.4
Turkey	30	63	21	104	83	395.2
Russian Federation	64	54	40	40 R	0	0.0
North America	468	704	973	2,213	1,240	127.4
Canada	95	92	113 E	164 E	51	44.8
United States	373	612	860	2,049	1,189	138.3

Source: UNECE/FAO TIMBER database, 2001.

TABLE 8.5.4

Production and trade of insulating board in the UNECE region, 1997-2000

(1,000 m³)

	1997		1998		1999		2000		Change 1999-2000	
									Volume	%
PRODUCTION										
EU/EFTA	556		544		508		505		-3	-0.6
of which:										
Germany	105		110	P	138	P	138	R	0	0.0
Switzerland	115		110		120		120	R	0	0.0
France	37	R	50		60		60	R	0	0.0
Other Europe	260		269		272		314		42	15.3
of which:										
Poland	177		186		198		239		41	20.7
Lithuania	15		19		21		25		4	16.7
North America	2,957		3,676		3,676		3,676		0	0.0
Canada	425		425	P	425	P	425	R	0	0.0
United States	2,532		3,251		3,251		3,251		0	0.0
EXPORTS										
EU/EFTA	598		579		484		497		13	2.7
of which:										
Italy	109		92	P	90		112		22	24.4
France	76		76		87		87	R	0	0.0
Other Europe	213		241		277		542		265	95.5
of which:										
Poland	132		138		154		211		57	36.8
Estonia	26		25		27		129		103	387.7
North America	212		232		252		247		-5	-2.0
Canada	130		110		129		141		12	9.3
United States	82		122		123		106		-17	-13.8
IMPORTS										
EU/EFTA	623		714		806		957		151	18.7
of which:										
United Kingdom	95		128		135		197		62	45.9
Italy	71		77	P	129		189		60	46.5
Germany	126		126		163		163	R	0	0.0
Netherlands	151		142		140		140	R	0	0.0
Other Europe	199		109		106		251		145	137.0
of which:										
Turkey	1		3		5		110		105	2100.0
Poland	111		31		25		55		30	119.9
North America	151		199		261		304		43	16.4
Canada	42		42		65	E	66	E	1	1.2
United States	109		157		196		238		42	21.4

Source: UNECE/FAO TIMBER database, 2001.

8.7 Literature cited

APA – The Engineered Wood Association. *Regional Production & Market Outlook 2001-2006*. Tacoma, Washington.

Composite Panel Association (CPA). *North America Capacity Report 2001*. Gaithersburg, Maryland.

Europäischer Wirtschaftsdienst (EUWID). *Wood Products and Panels*. Gernsbach, Germany.

European Panel Federation (EPF). *Annual Report 2000-2001*. Brussels, Belgium.

Random Lengths Yardstick. Eugene, Oregon.

Zentrale Markt- und Preisberichtstelle für Erzeugnisse der Land-, Forst- und Ernährungswirtschaft (ZMP). Bonn, Germany.

Chapter 9
Paper, paperboard and woodpulp – production, consumption and trade[1]

Highlights

- Economic recovery was the hallmark of pulp and paper market trends in 1999 and 2000, but a slowdown in global economic growth led to a more recent market reversal.
- European producers sustained record levels of paper and paperboard output in 2000, benefiting from regional GDP growth, a strong United States dollar and weak euro.
- Although prices had been climbing from early 1999 into 2000 for paper, paperboard, market pulp and recovered paper, they fell from peak levels during the first half of 2001.
- Market and profitability peaks attained earlier in the year 2000 gradually eroded, at first in North America and subsequently in Europe as well.
- The North American market reversal reflects impacts of a record United States trade deficit, a recession in the United States manufacturing sector, and weak economic growth in Asia.
- Monthly paper and paperboard purchases declined in the United States from early 2000 into the first quarter of 2001, the first protracted decline since the early 1990s.
- United States paper industry profits fell from the first quarter of 2000 to the first quarter of 2001, with weak exports, declining domestic purchases, and higher energy costs.
- Globally, net capacity growth remains subdued, well below historical growth rates, particularly in North America where many mills have been shut down in the past several years.
- A weakening of growth in Asian economies reduced pressures on global fibre supplies, further contributing to weakness in pricing for market pulp and recovered paper.
- Russia's pulp and paper sector experienced a significant recovery in 1999 and 2000, boosted by the devalued ruble along with growing domestic and export demands.

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Secretariat introduction

The secretariat extends its appreciation to the authors of this chaper, senior author Dr. Peter J. Ince, Research Forester, USDA Forest Service, along with Prof. Eduard L. Akim, PhD, Saint Petersburg State Technological University of Plant Polymers, and All-Russian Research Institute of Pulp and Paper Industry and Mr. Bernard Lombard, Recycling and Economics Manager, Confederation of European Paper Industries (CEPI).

This is the second time that Dr. Ince has helped us with this chapter and this year he coordinated the contributions of his two co-authors. Dr. Ince is a contributor to the Timber Committee market discussions as well as a collaborator in other projects of the Committee's teams of specialists. He works in the same research unit on forest products markets as Mr. Henry Spelter who co-authored chapter 8, on wood-based panels. We truly appreciate their knowledgeable input to the *Review* and we thank simultaneously the USDA Forest Service, Forest Products Laboratory for enabling them to work together with us.

Professor Akim is a member of the FAO Advisory Committee on Paper and Wood Products and provided tremendous insight into the state of the pulp and paper industry in Russia for this chapter. He was a speaker at the Timber Committee and European Forestry Commission market discussions in 2000 because of his in-depth knowledge of Russian timber markets.

Mr. Lombard and his colleague from CEPI, Mr. Eric Kilby, Statistics Manager, continue the collaboration that we have had established with CEPI. We sincerely appreciate the willingness of Ms. Marie Arwidson, Director General of CEPI, to assist us with the European perspective in this chapter.

From the secretariat standpoint the contributions of these three authors provide a deeper regional coverage than in the past. Although unseen by the readers, the authors and their assistants in their repective organizations were most helpful in validating the statistics sent by country correspondents, or more importantly, in filling in the gaps when a country did not supply certain pulp and paper statistics.

9.1 Introduction

This chapter discusses recent trends in European, North American and Russian paper and paperboard markets, along with trends in woodpulp and fibre markets. The discussion relates to pulpwood trends which are explained in preceding chapters in the context of overall trends in wood raw material use. The chapter is based on UNECE/FAO statistics as broken down into the subregions of CIS, EU/EFTA, Other Europe and North America. When statistics from CEPI are used, the text indicates the different basis.

9.2 Paper and paperboard

Although recovery in demand and profits had been the hallmark of European and North American pulp and paper markets in 1999 and well into the year 2000, a subsequent decline in global economic growth resulted in a reversal of market trends. From early 1999 through the first half of 2000 the market recovery in pulp and paper had propelled prices and profits to the highest levels since the previous global market peak in 1995. Record levels of consumption and production of paper and paperboard commodities were attained in both Europe and North America during the 1999 to 2000 period, but there were early signs that the recovery would be transitory by mid-2000, particularly in North America. Monthly United States purchases of paper and paperboard products had begun to decline early in the year. After years of sustained economic growth, the broad manufacturing sector of the United States went into a recession, heavily burdened by an exceptionally strong United States dollar and bulging trade deficit. The general slowdown in global economic growth reflects the record United States trade deficit, recession in United States manufacturing, and weak economic growth in Asia, particularly in Japan.

Looking back at the late 1990s, a number of key events signaled structural changes in the European and North American pulp and paper sectors, including corporate mergers, consolidation and a departure from historical patterns of growth in production capacity. The market volatility of the late 1990s was generally associated with a build-up of capacity and excess inventories in 1996, followed by the Asian economic collapse in 1997 and 1998. Corporate mergers, consolidation and slower capacity growth were largely a response to market volatility and variable profitability of the mid- to late 1990s, especially in the period from late 1995 through 1998. Market volatility was influenced also by expanded globalization of markets and currency exchange rate adjustments (i.e. strong United States dollar versus euro and other currencies). For a period in 1999 and 2000, it appeared that industry consolidation and constrained capacity growth were having the effect of stabilizing pulp, paper and paperboard commodity prices in North America and Europe. Record levels of product output and relatively high profits were attained in that period, at first in North America and subsequently in Europe. By early 2001, however, it appeared that markets had peaked in the previous year as prices for most pulp, paper and paperboard commodities were retreating on a global scale, owing in large part to the decline in United States domestic purchases and slow economic growth in

TABLE 9.1.1

Consumption[1] of paper and paperboard in the UNECE region, 1997-2000
(1,000 m.t.)

	1997	1998	1999	2000	Change 1999 to 2000	
					Volume	%
EU/EFTA	72,023	73,267	77,930	79,390	1,460	1.9
of which:						
Germany	16,454	17,073	17,766	19,112	1,346	7.6
France	10,418	10,743	10,955	11,359	404	3.7
United Kingdom	11,258	11,413	11,871	11,233	-638	-5.4
Italy	9,487	9,592	10,461	11,020	559	5.3
Spain	5,634	5,462	8,047	6,677	-1,370	-17.0
Netherlands	3,429	3,894	4,164	3,650	-514	-12.3
OTHER EUROPE	8,275	8,595	8,776	9,900	1,125	12.8
of which:						
Turkey	2,030	2,075	2,142	2,755	613	28.6
Poland	2,000	2,088	2,268	2,420	152	6.7
Czech Republic	761	782	803	854	51	6.4
Hungary	675	659	659	779	120	18.2
CIS	2,716	2,817	3,712	4,322	609	16.4
of which:						
Russian Federation	2,122	2,128	2,848	3,382	534	18.8
NORTH AMERICA	95,719	98,588	104,090	101,641	-2,448	-2.4
Canada	5,191	6,721	8,220	7,948	-271	-3.3
United States	90,528	91,866	95,870	93,693	-2,177	-2.3

1 Apparent consumption = production + imports - exports.

Source: UNECE/FAO TIMBER database, 2001.

Asia. Table 9.1.1 displays recent paper and paperboard apparent consumption data and Table 9.1.2 displays paper and paperboard production data for Europe, divided into two subregions, the Russian Federation and North America (United States and Canada).

9.2.1 *Paper and paperboard in Europe*

In the year 2000, apparent consumption of paper and paperboard among the 41 UNECE countries in Europe increased by 3.0% to reach 89.3 million m.t. The change was far greater for central and eastern European countries (CEECs), increasing by 12.8% to reach almost 10 million m.t. while the EU/EFTA contries increased less, by 1.9% to reach a much larger volume, 79.4 million m.t. Apparent consumption of paper and paperboard in Europe had previously reached a record level of 85.3 million m.t. in 1999, up from 82.5 in 1998 according to UNECE/FAO data.

According to the Confederation of European Paper Industries (*CEPI, Production Statistics 4th Quarter 2000*), CEPI member countries[2] in Europe reached record levels of paper and paperboard production early in the year 2000. CEPI member countries include all leading European producers and account for over 95% of total paper and paperboard production capacity within the ECE EU/EFTA and other Europe subregions.

The year 2000 was generally a picture of sustained growth for CEPI member countries in total. The year 1999 had ended with a flourish, the final quarter registering a record level of paper and paperboard output. This impetus was carried through the year 2000 for paper, paperboard and pulp grades. Quarterly returns of production clearly show the progress during the year, but

2 Throughout this chapter, the CEPI members, including associate members, are these 18 countries: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

TABLE 9.1.2

Production of paper and paperboard in the UNECE region, 1997-2000

(1,000 m.t.)

	1997	1998	1999	2000	Change 1999 to 2000	
					Volume	%
GRAPHIC PAPERS						
EU/EFTA	40,003	41,336	42,586	44,912	2,326	5.5
of which:						
Finland	9,088	9,243	9,392	9,810	418	4.5
Germany	8,121	8,260	8,401	9,334	933	11.1
Sweden	4,884	5,023	5,125	5,367	242	4.7
Other Europe	1,963	2,109	2,046	2,244	198	9.7
of which:						
Poland	565	594	667	731	64	9.6
Turkey	308	348	319	385	66	20.7
Russian Federation	1,577	1,869	2,188	2,288	100	4.6
North America	43,108	42,964	44,618	45,223	605	1.4
Canada	13,824	13,736	14,884	15,554	670	4.5
United States	29,284	29,228	29,734	29,669	-65	-0.2
SANITARY AND HOUSEHOLD PAPERS						
EU/EFTA	4,553	4,716	4,937	5,105	168	3.4
of which:						
Italy	1,026	1,102	1,182	1,200	18	1.5
Germany	890	931	954	1,017	63	6.6
United Kingdom	639	635	718	724	6	0.8
Other Europe	773	764	776	859	83	10.7
of which:						
Croatia	178	181	179	179 R	0	0.0
Slovakia	133	114	84	130 E	46	54.8
Russian Federation	93	94	106	116	10	9.4
North America	6,449	6,598	6,876	6,922	46	0.7
Canada	617	624	664	652	-12	-1.8
United States	5,832	5,974	6,212	6,270	58	0.9

Source: UNECE/FAO TIMBER database, 2001.

also reveal a gradual moderation in growth. At the end of the first quarter of 2000, the increase compared to the previous year was +8.3%. By mid-year the cumulative comparison was +7.0%, and it was +6.6% at the nine-month stage. By the end of the year, paper and paperboard production over the quarter was up by 5.6% compared to 1999, a hefty growth rate but somewhat less robust than earlier in the year.

Although quarterly trends reveal a peak in paper and paperboard production early in the year 2000, European producers sustained relatively high production levels throughout most of the year. Quarterly production volume among CEPI member countries peaked at 22.7 million m.t. in the first quarter of 2000 and dropped only slightly to 22.4 million m.t. by the fourth quarter of 2000, still the highest production level ever recorded for a fourth quarter by CEPI member countries. Total production of paper and paperboard for CEPI member countries in 2000 was just over the 90 million m.t. per annum mark, a record level of 90.5 million m.t.

TABLE 9.1.2 (contd.)

Production of paper and paperboard in the UNECE region, 1997-2000

(1,000 m.t.)

	1997	1998	1999	2000	Change 1999 to 2000 Volume	%
PACKAGING MATERIALS						
EU/EFTA	31,731	31,845	33,074	34,869	1,795	5.4
of which:						
Germany	5,798	5,983	6,217	6,574	357	5.7
Sweden	4,331	4,429	4,527	4,968	441	9.7
France	4,195	4,347	4,395	4,601	206	4.7
Other Europe	3,537	3,502	3,486	3,734	248	7.1
of which:						
Turkey	895	918	940	1,067	127	13.5
Poland	921	886	873	885	12	1.4
Russian Federation	879	1,242	1,705	2,121	416	24.4
North America	53,813	53,511	55,257	52,954	-2,303	-4.2
Canada	4,139	4,365	4,582	4,496	-86	-1.9
United States	49,674	49,146	50,675	48,458	-2,217	-4.4
OTHER PAPER AND PAPERBOARD						
EU/EFTA	3,378	3,497	3,606	3,757	151	4.2
of which:						
Germany	1,102	1,137	1,170	1,257	87	7.4
United Kingdom	415	464	515	480	-35	-6.8
Spain	302	366	423	439 E	16	3.8
Other Europe	280	338	409	421	12	2.9
of which:						
Poland	48	116	182	190	8	4.4
Croatia	71	69	75	75 R	0	0.0
Russian Federation	411	390	536	714	178	33.2
United States	2,131	2,103	2,155	2,157	2	0.1

Source: UNECE/FAO TIMBER database, 2001.

Production for the year 2000 increased by 4.8 million m.t. overall, a prodigious gain relative to the previous year.

Among CEPI member countries, increased production was recorded in 2000 across all paper and paperboard grades. Output of graphic paper grades (including newsprint) rose by 5.7%. Within the sector, production of uncoated graphic paper grades increased by 5.4%, while coated paper grades registered an increase of 8.5%. Mechanical paper grades achieved higher output growth rates (+9.8%) than woodfree grades (+5.1%). Newsprint output rose by 1.5%. Production of packaging grades rose by 5.8%, with case materials up by 4.9% and folding boxboards by 10.3%. Sanitary and household paper production increased by 3.6%.

Paper and paperboard consumption trends in Europe continued to track closely European GDP trends through the year 2000. Among the 18 CEPI member countries, consumption[1] of paper and paperboard rose by 4.3% in 2000, an increase of 3.5 million m.t. to 84.1 million m.t.

[1] CEPI calculates consumption on a different basis than UNECE and FAO. CEPI's consumption equals domestic deliveries plus imports from outside their 18-country region. UNECE and FAO calculate apparent consumption equal to production plus imports minus exports.

Economic growth was estimated to have been around 3.4% within CEPI member countries. Trends in both domestic demand and exports were very dynamic.

CEPI countries' exports to countries outside of their region had declined in 1999, mainly owing to weak markets in Asia. However, exports from CEPI member countries increased in 2000 by a percentage similar to the increase in production, 4.7% to reach 10.2 million m.t. The dollar/euro exchange rate in particular continued to favour European paper exports to North America and to regions with currencies pegged to the dollar. Exports were particularly strong to both North and South America, which more than offset a decline of deliveries to Asian markets. About 23% of exports from CEPI member countries went to North America (mainly to the United States), 19% to central and eastern Europe, and most of the remainder to Asia. However, during the last quarter of 2000 and first half of the year 2001, a decline in United States paper and paperboard purchases and slow growth in Asian economies resulted in a weakening of export markets and declining prices for most paper and paperboard commodities.

Among CEPI member countries, imports of paper and paperboard rose by 8.2% to 5.1 million m.t. in 2000. Imports contributed 6.1% of consumption (compared to 5.9% in 1999). Imports from North America fell slightly as did shipments from all other regions except eastern Europe. Imports from eastern Europe to CEPI member countries rose by 27% to 1.8 million m.t. Imports from North America accounted for 44% of CEPI imports while 35% came from eastern Europe.

In general, there was no great divergence in consumption trends among the major product sectors. Consumption of graphic paper grades increased by 2.5% among CEPI member countries. Graphic paper deliveries within CEPI member countries rose by 3.3%, with imports up by 8.5% and exports up by 1.6%. Consumption of newsprint among CEPI member countries increased by 0.7% to 10.9 million m.t. This was mainly met by an increase in newsprint imports of nearly 0.1 million m.t. (+8.1%). Imports accounted for 11% of newsprint consumption. Deliveries of newsprint to export markets fell by 11.8% and newsprint deliveries within the internal CEPI market fell by 0.2%. Consumption of uncoated mechanical paper grades rose by 4.2% to 4.9 million m.t., with imports, exports and internal deliveries all showing increases. Growth in consumption of coated mechanical paper grades continued (+7.3%), rising to just under 7 million m.t. Consumption increased in the year 2000 for both uncoated woodfree grades (+2.6%) and coated woodfree grades (+0.4%). Uncoated woodfree imports fell by 11.9%, while imports of coated woodfree rose by 37.1%.

Consumption of packaging grades increased by 7.3% to 33.9 million m.t., as gains were registered for both imports (+6.9%) and exports (+8.9%), as well as for deliveries within CEPI countries (+4.5%). Among packaging grades, consumption of corrugated case materials increased by 6.2%, folding boxboard rose by 2.9%, wrappings by 3.3% and other paper and paperboard for packaging by 28.1% (to 3.8 million tonnes). Imports increased among all the grades. Exports increased overall for packaging grades, but exports of case materials to countries outside of CEPI fell by 7%.

Consumption of sanitary and household grades fell 2% to 5.4 million m.t., resulting in a 2.2% decline in deliveries by CEPI producers within CEPI member countries. Imports and exports, which are equivalent to about 3% of consumption, rose; exports by 17% and imports by 5%.

Although European paper and paperboard producers experienced buoyant market conditions throughout most of 2000, production and consumption of paper and paperboard were declining in the United States. For example, while production increased by 5.6% among CEPI member countries, paper and paperboard production in the United States declined by 2.5% in 2000. Canadian producers, who export heavily into both the European and United States markets, saw production of paper and paperboard rise by around 3% in 2000 (slower than European producers but better than the decline experienced by United States producers). Production figures for the first quarter of 2001 show a paper and paperboard output of 22.7 million tons for CEPI member countries, slightly lower than in the same period of 2000. In the first half of 2001, prices generally weakened in Europe for most paper and paperboard commodities. For example, reported European prices for linerboard in June 2001 were about 15% lower than year earlier levels (*Pulp & Paper Week*).

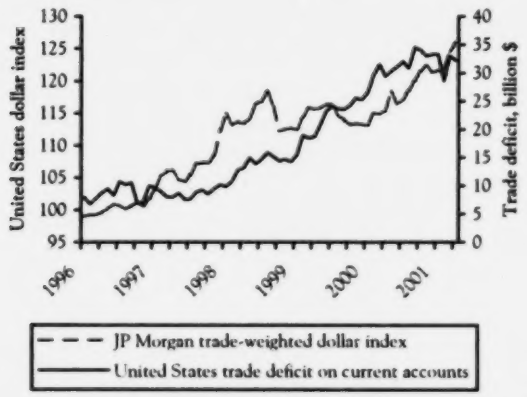
If not for the weakened condition of the United States economy (and weak growth in Asian economies), prospects for European exports might have continued to improve as a result of recent trade agreements. In June 2001, the United States suspended temporary trade sanctions on a number of export products from EU countries, including various paper and paperboard grades. Higher customs duties had been imposed by the United States in 1999 on European shipments of folding cartons, boxes, non-corrugated paper or paperboard cases, and uncoated felt paper and board. The United States had imposed the sanctions in the context of a trade dispute with the EU over bananas quotas which was resolved after a WTO ruling in April 2001. The United States then officially suspended the increased customs duties on various products (including paper and paperboard products) on July 1.

9.2.2 *Paper and paperboard in North America*

In the United States, 2000 and 2001 were marked by a strong dollar and a record trade deficit, resulting in a loss of competitivity for United States manufacturers (graph 9.2.1) (see also chapter 2, section 2.1).

GRAPH 9.2.1

United States monthly trade-weighted dollar index (JP Morgan) and monthly United States trade deficit, 1996-2001

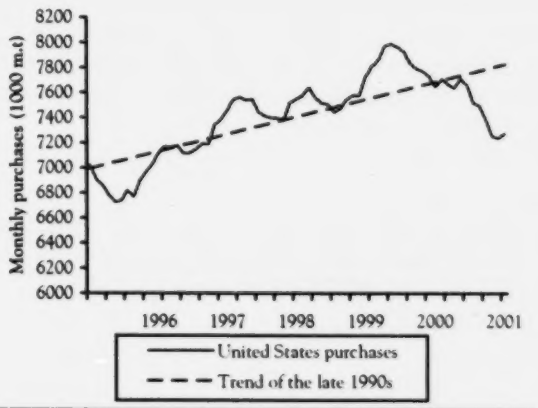


Sources: J.P. Morgan (board index), 2001; and United States Department of Commerce (trade deficit), 2001.

Although the United States housing market and American consumer confidence remained strong well into 2001, United States manufacturing activity had begun to recede earlier in 2000 in the face of declining export markets and increasing imports. The broad recession in the United States manufacturing sector contributed ultimately to a general slowdown in United States economic growth and a protracted downturn in domestic purchases of paper and paperboard from early 2000 to mid-2001, with reduced needs for corrugated case materials, packaging paper and paperboard, forms and office paper, and various other categories of paper and paperboard. Newsprint and sanitary paper products were not as immediately impacted by the manufacturing slowdown, but eventually purchases of most categories of paper and paperboard declined as the economic slowdown spread through the United States economy. Consequently, there was a sharp decline in monthly United States purchases of paper and paperboard products from early 2000 into the first half of 2001. The decline in monthly United States purchases of paper and paperboard products was a significant departure from the growth trend of the late 1990s and the first really protracted decline in domestic consumption of paper and paperboard since the early 1990s (graph 9.2.2).

GRAPH 9.2.2

United States monthly purchases of paper and paperboard products, 5-month moving average, 1996-2001



Source: American Forest and Paper Association, 2001.

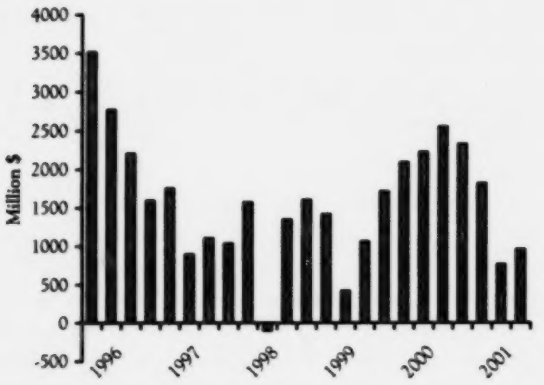
Through the late 1990s, apparent consumption of paper and paperboard in both Europe and North America had followed upward economic growth trends, correlated with robust growth in Gross Domestic Product (GDP). However, the recent decline in United States paper and paperboard purchases placed United States consumption and production on a negative track in stark contrast to weakened but still positive United States GDP growth. As annual United States GDP growth slowed from 5% in 2000 to 1% in the first quarter of 2001, the annual trend in United States apparent consumption of paper and paperboard slipped from -2.3% in 2000 to -4.7% in 2001 (on an unadjusted annual basis through May, 2001). While United States paper and paperboard prices had increased from the first quarter of 1999 through the first half of the year 2000, prices clearly had peaked and were retreating in the first half of 2001. Coupled with an economic slowdown in Asia, particularly in Japan, declining United States paper and paperboard purchases (stemming from the recession in United States manufacturing and bulging United States trade deficit) contributed to a generalized global reversal of pulp and paper market trends.

For the first time in many years United States producers faced the dual challenge of weak exports coupled with declining domestic demand, a circumstance bound to result in declining profitability. Even though production of paper and paperboard had increased in the United States in the late 1990s, United States exporters continued to be hampered by currency fluctuations and the generally strong value of the United States dollar, and United States markets became inundated by increased imports. Early in the second quarter of 2000 North

American producers began to also experience slippage in the tonnage of domestic shipments and profits. Eventually paper and paperboard prices peaked but not until later in 2000, allowing United States producers to achieve a peak in annual profits for the year 2000. However, quarterly profits in the United States paper and allied products industry were declining steadily throughout the year 2000 with the steadily declining tonnage of domestic purchases and declining exports (graph 9.2.3)

GRAPH 9.2.3

After-tax quarterly profits of United States paper and allied products industry, 1995-2001



Source: United States Department of Commerce, Bureau of the Census, *Quarterly Financial Report*, 2001

Surging energy prices also offset profits for North American producers over the past year. In the late 1990s, electrical utility companies in California divested themselves of power plants to assume a new more limited role as energy distributors under the state's new deregulated market structure. The state created incentives for utilities to sell generating plants to unregulated private companies, but new power plant capacity was slow to be approved and built. This led to a short-run deficit in electrical energy generating capacity that became fully evident in California with power supply interruptions over the past year. In addition, whereas only about 10% of United States electrical generating capacity is based on natural gas, about one third of existing generating capacity in California (and much new capacity) is based on natural gas. Natural gas is also increasingly a preferred fuel in industry because of relatively low emissions and low pollution abatement costs (relative to coal or oil). Thus, in the year 2000 mounting demand pressures pushed wholesale prices dramatically higher for both purchased electricity and natural gas in North America, with the most pronounced impact in western regions (numerous western states furnish electricity directly to the densely populated state of California). In addition to negative impacts on profits for pulp and paper producers, some mills in the western United States and Canada were temporarily idled or permanently closed in the past year due to higher energy costs.

In the year 2000, paper and paperboard consumption in North America dropped by 2.4%, with a 2.3% decline in consumption in the United States. In the United States alone, apparent consumption of paper and paperboard (including building paper) fell from a record level of 95.9 million m.t. in 1999 to 93.7 million m.t. in 2000 (based on production and trade data reported by the American Forest & Paper Association (AF&PA) *Paper, Paperboard & Wood Pulp, Monthly Statistical Summary*). The decline in United States paper and paperboard consumption stood starkly in contrast with United States GDP growth of 4% in 2000 (revised estimate). The decline in paper and paperboard consumption reflects impacts of the recession in the United States manufacturing sector and the record United States trade deficit.

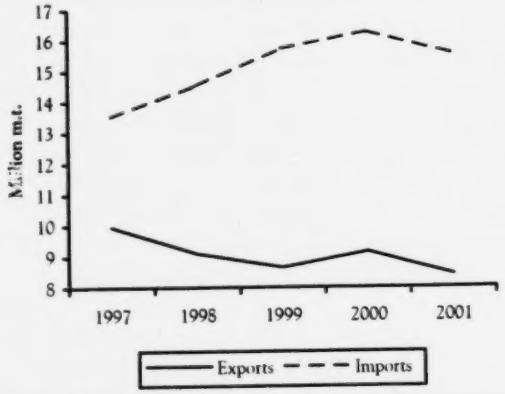
In the United States, production of paper and paperboard dropped in 2000 by 2.5%, from 97.9 to 95.4 million m.t., more than the drop in United States apparent consumption. More significantly, the production trend was generally declining on a monthly basis throughout most of the year and well into the year 2001. On an annual basis, United States production of paper and paperbard in the first five months of 2001 was 5.1% lower than production in 2000. The relatively high trade-weighted value of the United States dollar continued to dampen United States exports and provided economic incentive for high levels of United States imports.

The United States trade deficit in paper and paperboard widened significantly in recent years, as the tonnage difference between imports and exports approximately doubled between 1997 and 2000. The widened United States trade deficit in paper and paperboard since 1997 was attributable in part to the Asian economic decline in the period from 1997 to 1998, and also more recently attributable to the exceptionally strong value of the United States dollar. European producers continued to benefit from the exceptionally strong United States dollar and weak euro.

The trend in annual United States imports of paper and paperboard changed direction in 2001 based on preliminary data through April by AF&PA, but the drop in imports reflects weakness in the United States economy (graph 9.2.4). With declining domestic purchases, United States paper and paperboard imports were also declining by the first quarter of 2001, relative to

GRAPH 9.2.4

United States annual imports and exports of paper and paperboard, 1997-2000, with preliminary estimates for 2001



Note: 2001 is forecast by AF&PA.
Source: American Forest and Paper Association, 2001.

record import levels in 2000. United States imports had increased to 16.3 million m.t. in the year 2000 (including construction paper and board), up from 15.7 million m.t. in 1999, but preliminary data for the year 2001 (through April) indicate an annual import volume of only 15.6 million m.t. In 2000, total United States exports of paper and paperboard were 9.1 million m.t., up from 8.6 million m.t. in 1999, owing primarily to a surge in exports early in the year 2000. However, over the year exports declined on a monthly basis, and preliminary data for 2001 indicate an annual export volume of only 8.4 million m.t.

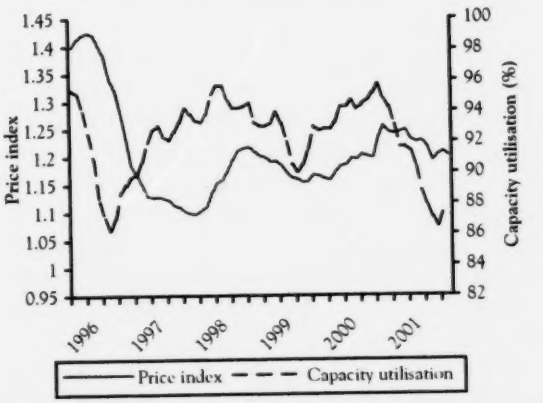
In the United States, price trends for paper and paperboard commodities have generally continued to follow industry capacity utilization trends, as indicated by the correlation between trends in the nation-wide price index for all paper and paperboard commodities and trends in monthly capacity utilization (graph 9.2.5). The market trends for paper and paperboard are also generally correlated with trends in industry profits.

Prices and capacity utilization rates declined noticeably in the second half of the year 2000 and into the year 2001. By June of 2001, corrugated container board (case materials) and boxboard prices were down by 5 to 10% in North American markets relative to peak 2000 price levels (*Pulp & Paper Week*), while coated and uncoated graphic paper grades were also generally down from recent peak levels. As the capacity utilization rate generally leads price developments by a few months, the steep drop from mid-2000 to mid-2001 (from 96% to just over 86%) might indicate that further price weakness is possible.

During the late 1990s United States capacity utilization for paper and paperboard was correlated with trends in United States exports as shown by monthly trends (graph 9.2.6). This correlation was the outcome of volatility in United States trade during the late 1990s. Even though United States exports were just 10 to 11% of United States paper and paperboard production, the volatile nature of export markets exerted a strong and variable influence on domestic markets (cf. graph 9.2.5).

GRAPH 9.2.5

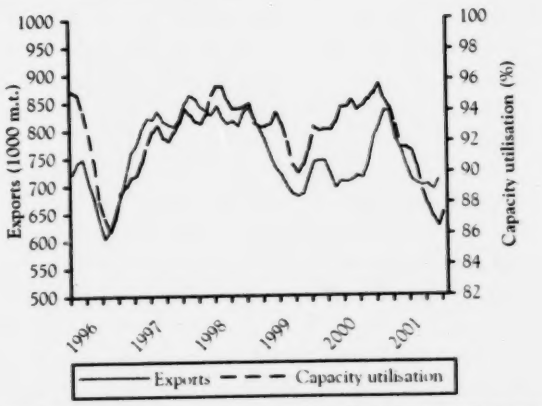
United States price index and capacity utilization rate for paper and paperboard, 1995-2001



Note: Capacity utilization is a 4-month average.
Sources: AF&PF (Capacity utilisation), 2001; and United States Bureau of Labor Statistics (Price index), 2001.

GRAPH 9.2.6

United States exports and capacity utilization rate for paper and paperboard, 1995-2001



Note: Capacity utilization is a 4-month average.
Sources: AF&PA (capacity utilisation), 2001; and United States Department of Commerce (exports), 2001.

However, the two trends have diverged markedly in recent months. This divergence is a reflection of the recent decline in domestic purchases with the drop in domestic purchases overriding the relationship between exports and capacity utilization (cf. graph 9.2.2)

There are mixed signals for the short-term outlook for pulp and paper in the United States. By late June of 2001 there were few indicators of real strength in the overall United States economy and the United States manufacturing sector was still in recession. Overall United States industrial production fell by 0.7% in June of 2001, dropping industrial production to 3.5% below year earlier levels. The purchasing managers index (PMI), reported by the National Association of Purchasing Managers (NAPM), is a leading measure of manufacturing activity in the United States. The PMI had indicated that the broad United States manufacturing sector was in recession for 11 months up to June of 2001. However, the PMI turned upward in June 2001, its best level since November of 2000, reaching 44.7% (although an index value of less than 50% is still considered to be an indication that the manufacturing sector is contracting). Other conditions for economic growth apparent by mid-year 2001 included the recent Federal Reserve Bank reductions in short-term interest rates, declining energy prices, and a phased reduction in federal income tax rates. As an additional positive sign, total inventories of market pulp and containerboard declined in March through May of 2001, while the 4-month moving averages of paper and paperboard capacity utilization and exports trended upward for the first time in over a year (cf. graph 9.2.6).

Paper and paperboard capacity growth remains relatively subdued in North America where many older mills have been shut down in the past several years. Total paper and paperboard capacity in the United States and Canada is expected to increase by only about 0.8% per year between 2000 and 2003 according to estimates provided by the AF&PA and the Pulp and Paper Products Council of Canada (PPPC continues the statistical services formerly provided by the Canadian Pulp and Paper Association, CPPA, which is now known as the Forest Products Association of Canada or FPAC). The decline in growth for United States paper and paperboard capacity in particular stands in contrast to an average capacity growth rate of about 2.5% over the preceding 20 years. With declining levels of production for paper and paperboard, United States overall capacity utilization rates fell to an average of 91% in the year 2000 and dropped to around 84% on a monthly basis by May of 2001 (AF&PA).

For Canadian producers, overall pulp, paper and paperboard demand was strong in the year 2000 (including export markets), as reflected in record production, shipments and exports. This summary of Canadian trends is drawn from CPPA, *2000 Annual Review*, and PPPC, *Canadian Pulp and Paper Industry Key Statistics*. Canadian production of paper and paperboard reached a record 20.7 million m.t. in 2000, while Canadian production of market pulp reached a record just above 11 million m.t. Growth was sustained in all major product lines except packaging and in all major export markets except in China and Latin America. Growth in the economies of North America, Europe and Asia brought strong demand for Canadian paper products. The industry capacity utilization rate averaged a fairly healthy 94%. The pulp and paper industry's net earnings for the year 2000 were US$1.8 billion, more than several times higher than weak profits of the preceding year.

Canadian exports of pulp, paper and paperboard increased to a record level of 26.5 million m.t. in 2000. Canada exported 85% of its total shipments to 122 countries. Shipments to the United States grew by 4% in 2000, reaching 16.6 million m.t., accounting for two thirds of all Canadian exports. Printing and writing paper (graphic papers excluding newsprint) accounted for most of the volume growth (+14%), although Canadian shipments of newsprint to United States markets also increased, by 1.4%. Canadian exports to Europe increased by 6% in 2000. Pulp accounted for about three fourths of total shipments to Europe, with the remainder of exports mainly in newsprint. Total Canadian exports to Asia, including Japan, decreased 2%. Canadian exports to Asia are primarily woodpulp. Growth in exports to Japan (7%) was offset by a 26% reduction in exports to China, largely as a result of increased Russian pulp shipments to China.

While the year 2000 was generally a good one for the Canadian pulp and paper sector, gains were not evenly distributed across the year and trends moved generally downward towards the end of the year. In effect, markets for Canadian producers mirrored the global economy, with softening in the fourth quarter as the United States economy entered a period of much slower growth. The fourth quarter decline in total production for Canada was about 5%.

9.2.3 *Paper and paperboard in the Russian Federation*

After years of economic instability in the 1990s, the first clearly positive results of privatization and realization of investment programs have shown up in the Russian pulp and paper sector over the past several years. Outputs of key pulp and paper products have increased by 20 to 30% or more since 1998. Structural reorganization of the industry proceeds. The Russian pulp and paper industry has become more export-oriented. There was a very large increase in cut-to-size office paper production that made it possible to significantly reduce imports of this expensive

paper grade. Newsprint output has actually returned to the levels of 1988 and 1989 (its previous peak) and thus newsprint mills are in full operation (*PPB-Express*, No. 3, No. 9, and No. 1, 2001, Moscow, A. Schwarz, Chief Editor).

Russia has the largest volume of standing timber of any country in the world, at an estimated 80.7 billion cubic metres. Currently in Russia only about 15 to 20% of the annual increment is utilized, much less than in countries such as the United States, Sweden, or Finland (where 55 to 75% of annual growth is harvested). Late in the 1980s timber harvest volume in the USSR was about 350 million m^3 a year.

After disintegration of the USSR and abrupt transition from a planned to a market economy, Russia suffered drastic declines in output of all forest products along with a big reduction in timber harvest volume. The transition to a market economy and global price scale proved to be very difficult for the forest sector of Russia. Other reasons for the decline in harvest volume included drastic reductions in domestic demand and the lack of viability of exporting timber from regions such as Western Siberia, whether using ports in the Russian Far East or European Russia. However, trends of recent years point to a revival of the pulp and paper industry, although the economic situation remains rather complicated in other sectors of the forest industry (such as in harvesting, woodworking, and furniture).

Revival of Russia's forest industry will continue to be predicated on restructuring and large-scale investment. The feasibility of capital investment is in turn predicated on political and economic stability as well as stability of the legal system. Fifteen years ago the pulp and paper industry of the USSR occupied the fourth position in world output of paper and paperboard, and it was oriented mainly to domestic markets. Pulp and paper exports comprised no more than 30 to 35% of total output and exports were oriented toward eastern European countries. For reference the current exports are 50% of production as explained below. Imports consisted primarily of products such as office papers.

During the global market slump of 1995 to 1996, Russian pulp and paper output bottomed out at a level that was only 30 to 40% of 1988 to 1990 levels. Since then there has been a notable increase in output. Also, during recent years there was not only an increase in pulp and paper output but also an industry restructuring. Industry restructuring in Russia has been focused on becoming export-oriented. As this takes place, not only have exports as a share of total output dramatically increased but also the market structure and destination of exports have undergone certain changes. Major export destinations for Russian pulp and paper products now include China, western European countries and even the United States.

The Russian pulp and paper sector, like all other industrial sectors, was strongly affected by the transition process, which led to rapid and profound changes throughout the 1990s, notably a long-term recession, with very low domestic demand, large-scale privatization and an increase in imports. However, the devaluation of the ruble in 1998 and the period of relative stability in 1999 and 2000 has led to more favourable conditions for the sector (see also section 2.1.4).

Compared to other domestic industries, the Russian pulp and paper industry has a number of advantages, which explain its growth in 1999-2000 and expected growth in the years to come. In the 1999-2001 period, the majority of Russia's forest, pulp and paper enterprises increased their output and raised production profitability. This may be attributed both to adaptation of the mills to market conditions and to adjustment in the ruble/dollar exchange rate. Whereas the prices of pulp and paper products in ruble terms underwent three- to four-fold changes during the last two years, production costs increased only 1.5 to 2 times. The major cost components (wood, power and labour) underwent smaller changes than prices of pulp and paper products in Russian and world markets. The adjustment in the ruble/dollar exchange rate was a positive factor for the Russian pulp and paper sector. By the end of the 1999-2000 period more than half of the outputs of Russia's pulp and paper industry were being exported.

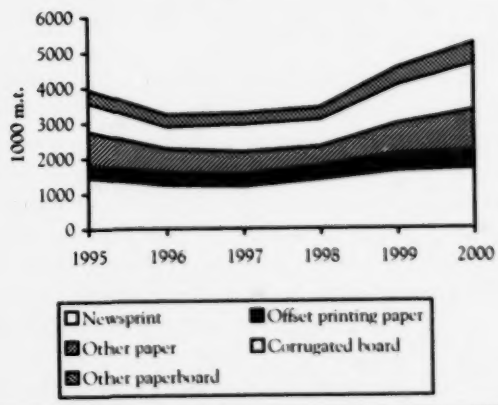
Exports of pulp and paper products are of considerably greater importance and offer greater prospects for economic development in Russia than exports of raw materials. Raw material conversion on site and manufacture of high value products provides jobs, increased purchasing power and higher living standards. The national income per capita is increasing in Russia and also paper and paperboard consumption per capita is rising. Russia's transition to a market economy resulted in growing consumption of higher value pulp and paper products, such as cut-to-size office paper grades, up-to-date types of paper and paperboard packaging, containers and tissue goods. Total imports of these products into Russia are as much as 600-700 thousand m.t. per year. At the same time, products such as market pulp, newsprint, kraftliner, and to a lesser degree, reeled offset paper were exported from Russia. With the recent dramatic change in the ruble/dollar exchange rate, it became evident that it would be profitable to manufacture all kinds of high quality pulp and paper products directly in Russia. The investment projects of strategic investors entering Russia's pulp and paper industry have precisely these purposes. The OAO Svetogorsk International Paper joint venture project is a prime example of this revival and

restructuring process. Although the contribution of Russia to global pulp and paper output dropped from 5.2% in 1980 to just 1.1% in 1997, Russia's share of global output recently increased to 1.6%.

Domestic consumption of paper and paperboard in Russia was 3.4 million m.t. in 2000, an increase of 19% compared with 1999. In 2000 exports of paper and paperboard reached 2.4 million m.t., an increase of 17% relative to exports in 1999. Even higher growth of exports of individual paperboard grades was observed in 2000; for example the growth in exports of boxboard was more than 40%. Paper and paperboard production in the Russian Federation reached 5.2 million m.t. in 2000, an increase of 18% over 1999, including growth in paper production of 13% and growth in paperboard production of 21% (graph 9.2.7). Although output of paper and paperboard has increased in recent years, output in 2000 was still only 62% of production in 1988 to 1989. By convention in Russia the production level of 1988 to 1989 is taken as the basis for computing capacity utilization. By the same convention, however, newsprint capacity was essentially fully utilized while 80% of corrugated paperboard capacity was utilized.

GRAPH 9.2.7

Annual production of paper and paperboard in the Russia Federation, 1995-2000



Source: Goscomstat of the Russia Federation, 2001.

9.3 Woodpulp

9.3.1 *Woodpulp in Europe*

Output of woodpulp in Europe increased in 2000 (table 9.3.1). Total production among CEPI member countries, both integrated and market pulp, reached 40.7 million m.t., an increase of 5.5%. The increase in chemical woodpulp output was 4.4%, while production of mechanical and semi-chemical woodpulp increased by 7.2%. According to FAO capacity data, the CEPI member countries account for more than 99% of total European pulp capacity. Overall consumption[4] of pulp among CEPI countries increased to 47.4 million m.t. (+5.4%). Exports fell by 21.8%, while imports increased by 5.3%. Consumption of mechanical and semi-chemical increased by 6.6% to 15.1 million tonnes. Consumption of chemical pulp was 30.3 million tonnes (+4.4%).

Woodpulp production in central and eastern European countries increased more than the EU/EFTA subregion in percentage from 1999 to 2000. Chemical woodpulp rose by 10.3% to reach 2.8 million m.t., while mechanical woodpulp increased by 18.5% to 407,000 m.t. Chemical woodpulp apparent consumption increased 10.4% to reach 3 million m.t., indicating that a little more than the increased production was consumed.

Consumption of recovered paper continued to increase in Europe in 2000. Utilization of recovered paper among CEPI member countries was up by 6% at 41.1 million m.t. Apparent collection or recovery also increased, by 3.9%, to just below 43 million m.t. Thus, the apparent recovery rate of paper for recycling in Europe reached approximately 52% of total paper and paperboard consumption in 2000 according to estimates for CEPI member countries.

The weakening of global pulp and paper markets in the first half of 2001 contributed to weakness in prices for market woodpulp in Europe. Market woodpulp prices were generally declining in Europe during the first half of 2001. Reported European prices for Nordic birch pulp, for example, were just under 500 euro per metric ton by June 2001, more than 25% below price levels of a year earlier, while softwood market woodpulp prices were down by about 20% from levels of one year earlier levels (*Pulp & Paper Week*).

9.3.2 *Woodpulp in North America*

For Canada's woodpulp producers, market trends at the beginning of 2000 continued to exhibit the positive trends of 1999. Pulp markets remained robust through the first half of the year. However, eventually a drop in United States and Asian consumption and a draw-down of inventories by customers weakened pulp demand in the second half of the year, and flattened the growth in Canadian market pulp shipments to just 0.9% for the entire year. Canadian production of market pulp for the year 2000 was 11 million m.t. The bulk of United States

[4] CEPI's apparent consumption is domestic deliveries plus imports. UNECE/FAO's apparent consumption is production plus imports minus exports.

TABLE 9.3.1

Production of woodpulp in the UNECE region, 1997-2000

(1,000 m.t.)

	1997	1998	1999	2000	Change 1999 to 2000 Volume	Change 1999 to 2000 %
MECHANICAL WOODPULP						
EU/EFTA	12,955	13,155	13,001	13,652	651	5.0
of which:						
Finland	4,469	4,637	4,602	4,810	208	4.5
Sweden	2,959	3,026	3,029	3,304	275	9.1
Norway	1,534	1,664	1,644	1,717	73	4.4
Other Europe	283	330	344	407	64	18.5
of which:						
Poland	99	113	126	130	4	3.2
Turkey	25	31	53	96	43	81.1
Russian Federation	899	981	1,129	1,280	151	13.4
North America	16,755	15,772	16,331	17,430	1,099	6.7
Canada	11,354	10,481	11,222	12,287	1,065	9.5
United States	5,401	5,291	5,109	5,143	34	0.7
CHEMICAL WOODPULP[1]						
EU/EFTA	23,778	23,501	23,639	24,454	815	3.4
of which:						
Sweden	7,857	7,523	7,664	8,241	577	7.5
Finland	7,241	7,339	7,606	7,729	123	1.6
France	1,985	1,913	1,817	1,811	-6	-0.3
Portugal	1,703	1,708	1,755	1,774	19	1.1
Spain	1,546	1,545	1,617	1,673	56	3.5
Other Europe	2,234	2,460	2,353	2,646	293	12.5
of which:						
Poland	785	841	786	831	45	5.7
Czech Republic	453	490	504	569	65	12.9
Slovakia	181	339	339	419	80	23.6
Russian Federation	2,851	3,010	3,980	4,664	684	17.2
North America	68,759	67,355	67,172	67,506	334	0.5
Canada	13,795	13,122	13,919	14,112	193	1.4
United States	54,964	54,233	53,253	53,394	141	0.3

[1] Including semi-chemical woodpulp and dissolving grades.

Source: UNECE/FAO TIMBER database, 2001.

woodpulp imports come from Canada. United States imports of woodpulp from Canada increased from 5.0 million m.t. in 1999 to 5.3 million m.t. in 2000, but then levelled out in 2001 based on import data for the first four months.

Total woodpulp production in the United States (production at integrated pulping and papermaking facilities, market pulp, and dissolving pulp) reached 58.5 million m.t. in 2000, just 0.3% ahead of production in 1999. However, monthly production was generally declining since the first quarter of 2000. Statistics for the first five months of 2001 give a preliminary indication that the annual volume of United States woodpulp production has dropped by 7%. Woodpulp producers in the United States shipped about the same volume of paper grade market pulp in 2000 as in 1999, 7.6 million

m.t., but United States producers experienced a declining trend in shipments over the year and into 2001 as domestic paper production waned. By May 2001, paper grade market pulp shipments by United States producers stood at just 7.1 million m.t. on an annual basis, giving preliminary indication of a 6% decline.

United States imports of woodpulp rose from 6.0 million m.t. in 1999 to 6.6 million m.t. in 2000. Data for the first four months of 2001 indicate that imports have levelled out at 6.6 million m.t. on an annual basis. Imports from Latin America increased from 0.9 million m.t. in 1999 to 1.1 million m.t. in 2000. United States exports of paper grade market pulp increased from 4.9 million m.t. in 1999 to 5.4 million m.t. in 2000, but preliminary data for the first four months of 2001 indicate that exports have dropped back to an annual rate of 5.0 million m.t.

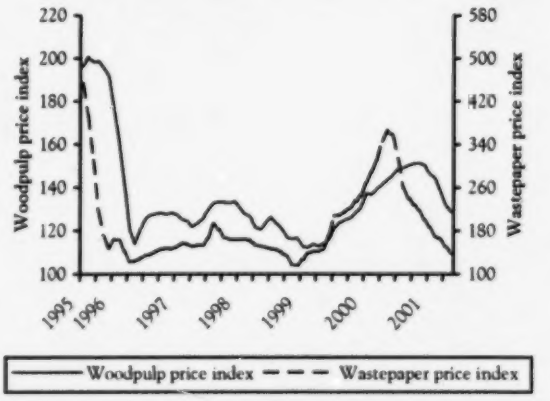
By the end of the year 2000 many North American pulp producers were responding to softening pulp markets by taking additional downtime, but price trends into the first half of 2001 remained generally negative. North American prices for benchmark grades of kraft market pulp declined from peak levels of around $700 per metric ton in 2000 to the range of $450 to $550 per ton by the second quarter of 2001 (*Pulp & Paper Week*). As with paper and paperboard capacity, relatively slow growth is anticipated in North America for market woodpulp capacity, expected to average just 1% annually from 1999 to 2003.

A number of new paper and paperboard mills began operation recently in Asia, and more are scheduled to begin operation in the near future (particularly in China). Included among the new Asian mills are some of the largest and fastest paper machines in the world. Many of the new mills are operating on the basis of imported market pulp (in the case of paper mills) or on the basis of recycled fibre (often imported fibre in the case of paperboard mills). Although much of the imported market pulp for Asian mills comes from sources in Asia, such as hardwood pulp from mills in Indonesia or softwood pulp from mills in Russia, growing fibre demands in Asia place new demands on global fibre markets, including demands for recovered paper directly from North America and Europe in some cases.

Conversely, when fibre demands weaken in Asia as they did in the 2000 to 2001 period, this contributes to downward trends in markets and prices for pulp and recovered paper. Prices for most grades of recovered paper including old corrugated containers, old newspapers, and pulp substitutes were retreating in North American markets over the period from mid-year 2000 to mid-year 2001. Also contributing to abundant supply of recovered fibre was a record recovery rate of paper for recycling of 48% achieved in the United States in 2000. The trends for these heavily traded commodities tend to follow the global market cycles for paper and paperboard, reflecting for example the general market reversal of the past year noted previously for paper and paperboard (graph 9.3.1).

GRAPH 9.3.1

United States average price indexes for market pulp and recovered paper, 1995-2001



Source: United States Bureau of Labour Statistics, 2001.

9.3.3 *Woodpulp in the Russian Federation*

In 2000, total output of woodpulp in the Russian Federation was 5.0 million m.t., an increase of 17% relative to 1999. In general, the share of pulp output based on older sulphite technology has been reduced. Output of market pulp in the Russian Federation was 2.0 million m.t., an increase in production of 16% relative to 1999. Also in 2000 exports of woodpulp increased by 21% and reached 1.6 million m.t. The export share of total production was 81.8%. China took first place among importers of market pulp from the Russian Federation.

Woodpulp shipments to China are dominated by Siberian pulp, paper and paperboard enterprises such as the Ust–Ilimsk Forest–Industrial Complex (where output of market pulp in 2000 was 0.5 million m.t.), the Bratsk Forest–Industrial Complex (0.36 million m.t.), and the Baikalsk Pulp and Paper Mill (0.17 million m.t.). Negotiations are now under way with China regarding construction of a new pulp mill in Ust–Ilimsk.

9.4 Conclusion

Consequences of the increased value of the United States dollar since 1997 included a record United States trade deficit and ultimately a recession in the broad United States manufacturing sector beginning in 2000 and continuing through mid-year 2001. Recession in the

United States manufacturing sector led to a more generalized slowdown of economic growth in the United States economy, with United States GDP growth in the first half of the year 2001 dipping to an annual rate of only about 1%. The United States economic slowdown and recent slow growth in Asian economies (with a mild recession in the Japanese economy) have led to a generalized reversal in pulp, paper and paperboard market trends, with declining domestic purchases of paper and paperboard in the United States and declining prices for pulp, paper and paperboard commodities on a global scale. The market reversal follows global peaks in production, consumption and industry profits that occurred in North America and Europe earlier in the 1999 to 2000 time period.

With the protracted downturn in United States purchases of paper and paperboard, growth in United States imports of pulp, paper and paperboard appear to have leveled off. By mid-year 2001, the European economy appeared to be lagging but following the United States into an economic downturn. The pulp and paper sector of Russia experienced a significant recovery in 1999 and 2000, boosted by adjustments in the ruble/dollar exchange rate along with growing domestic and export demands.

Prospects for growth in the pulp and paper sectors of Europe, North America and Russia appear to be hinged largely upon trends in the dollar value, particularly trends in the dollar/euro exchange rate and the ruble/dollar exchange rate, trends in the United States manufacturing sector, and trends in overall GDP growth. Although much uncertainty exists about the ultimate direction of these trends, it is clear that the directions they take will be the signposts of future market directions for pulp, paper and paperboard producers throughout the UNECE region and elsewhere.

Chapter 10
Markets for certified forest products[1]

Highlights

- Markets for certified forest products (CFPs) continue to be mainly located in western Europe, especially the United Kingdom, Netherlands and Germany, and in the United States.
- The CFP market continues to grow exponentially in some markets. Market share of CFPs is claimed by proponents of certification schemes to be over 25% in the United Kingdom, around 4% in the Netherlands and less than 1% in Germany.
- Awareness by final consumers of CFPs continues to be low and there are few signs that private consumers actively ask for CFPs or are actually paying premiums. However, several large retail chains are actively promoting CFPs.
- Public procurement plays an important role as a driver of demand in several countries.
- In the business-to-business markets most of the CFP marketing has been based on its potential competitive advantage, market access, image building and environmental pressure.
- On the supply side the area of certified forests has also grown exponentially, reaching about 80 million hectares by mid-2001, due to several new certification systems now operational, notably Pan European Forest Certification (PEFC) in Europe and Sustainable Forestry Initiative (SFI) in North America, in addition to the existing Forest Stewardship Council (FSC).
- In Europe around 28.5% of the forest area is already certified, compared with about 6.7% in the United States.
- Today, a wide range of CFPs are available mostly with a FSC label as in the past, but also increasingly with a PEFC label.
- Forest certification remains highly controversial, with conflicting stakeholder interests, divergent views on certification as well as differences of opinion on the issue of mutual recognition between major schemes.
- The coming year will see further growth of CFP markets and further intense discussions.

Note: the basis of information in this chapter is not the UNECE TIMBER database built on country-supplied statistics as in the previous chapters. As no official statistics exist on certified forest products, it is based on the author's experience, claims by certification organizations and a partial survey of a new network of UNECE country-nominated certification experts.

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Secretariat introduction

The secretariat sincerely thanks Dr. Ewald Rametsteiner, Expert on Certified Forest Products Markets, from the Institute of Forest Sector Policy and Economics, Vienna, for his timely research results summarized in this chapter. The UNECE Timber Committee follows the quickly evolving markets for certified forest products and publishes information here as well as in a Geneva *Timber and Forest Discussion Paper*[2] on the status of certification of sustainable forest management in the UNECE region. Dr. Rametsteiner also wrote "Sustainable forest management certification," which was published by the Liaison Unit, Vienna, of the Ministerial Conference on the Protection of Forests in Europe, where he also works.

Since the last *Review* was published, the Timber Committee established an informal network of country correspondents on the markets for certified forest products. We express our appreciation to all those country correspondents who replied on time to the survey. Further information from these correspondents, for example on forest certification, will be published by October 2001 in an update of the above-mentioned discussion paper.

10.1 Introduction

Certified forest product (CFP) markets have been analysed in a regular chapter in the *Review* since 1998. The Timber Committee considers CFPs an increasingly important area to cover in the market discussions. The discussion in the *Review* will concentrate on the market and trade aspects for CFPs. Several other forums exist to discuss the various issues surrounding forest certification, including the Food and Agriculture Organization. Likewise, non-independently certified forests or forest products and process certification schemes such as ISO 14001 are not included as these do not generally lead to certified forest products.

Part of the information for this chapter was collected through a newly established CFP market and forest certification intelligence network throughout the UNECE region. A survey of the members of the network was carried out in summer 2001, requesting information on the situation in each country. This chapter is largely based on the initial 14 replies received. It is intended to maintain and develop the network. However, it is inevitable that the data quality of this chapter, especially where non-quantitative judgements are concerned, cannot be the same as in other chapters of the *Review*. The valuable contributions of the national correspondents are greatly appreciated. Further information was obtained from additional surveys and background material was gathered from different sources, including FAO, International Tropical Timber Organization (ITTO), UNECE and others.

10.2 What are CFPs?

Certified forest products bear labels demonstrating that they come from forests that meet, in a verifiable manner, standards for sustainable forest management. Consumers might find labels on furniture and wood products while manufacturers could verify the source of certified products from a system of chain of custody that identifies the origin of the wood.

10.3 Demand for CFPs

10.3.1 Consumer markets

10.3.1.1 Private consumers

Final consumers are not an active driving force in the market for CFPs anywhere in the world. Nevertheless, general consumer sentiment on environmental and social issues, notably on tropical deforestation, remains a significant underlying driver of forest certification efforts throughout the forest and trade sectors. Given the rather early stage of CFP market development, awareness of even the longest established logo on CFPs, that of the Forest Stewardship Council (FSC), is rather low even in those markets where CFP logos have highest visibility and where "green" certification is well-established, such as in the United Kingdom, the Netherlands and Germany.

The low level of consumer awareness on forest matters, and the secondary importance in purchase decisions of environmental friendliness of products, gives little reason to forecast significant increases, due to consumer drive, in the quantity of forest products consumed in the short to medium term. The important exception to the general conclusion of weak effects of certification on consumer behaviour appears to be the tropical wood products markets in certain western European markets where there is sensitivity to tropical deforestation, especially in Germany.

While the majority of consumers in western Europe consider wood as the most environmentally friendly material, ahead of all substitute materials, its green image in North America is considerably weaker. CFPs are able to help maintain or enhance the overall green image of

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[2] "Forest Certification update for the ECE region, summer 2000" by Eric Hansen, Keith Forsyth and Heikki Juslin. ECE/FAO *Geneva Timber and Forest Discussion Paper*, ECE/TIM/DP/20, 2000, and on the UNECE Timber Committee website at: www.unece.org/trade/timber/docs/certification/dp-20.pdf.

wood products, one of the most important competitive strengths of wood against substitute materials.

A considerable number of consumer studies have been carried out on willingness to pay more for CFPs. These studies have concluded that a majority of consumers express willingness to pay a little more. This is to be seen as an indication of the interest in the information, not an indication of the actual price premium to be pocketed by sellers. Many players active in the market see the lack of consumer awareness and interest as a major constraint for market development outside the more established markets for CFPs.

10.3.1.2 Public procurement

Public procurement is a rather strong demand factor for CFPs in several western European countries, especially at the municipality level. In the United Kingdom, Denmark, the Nordic countries, the Netherlands, Belgium, Germany and Austria as well as in several states of the United States, administrations have taken action to implement "green" public procurement policies that directly or indirectly favour CFPs, especially for tropical timber. No statistics or estimations exist about the size of the market for forest products that is actually affected. Nevertheless, public procurement in these countries certainly constitutes a considerable volume. Green or sustainable public procurement policies are expected to play a gradually increasingly important role in many UNECE member countries in the future. The European Union, which is currently revising its public procurement policy (covering a sum of about $620 billion per year) has just recently adopted a "Sustainable Development Strategy".

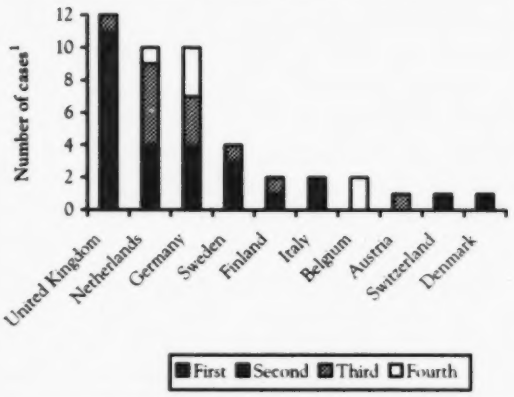
10.3.2 Relative importance of markets

Today CFPs are sold in about 15 countries in the ECE region. The replies from correspondents in the newly formed network suggest that three markets – the Netherlands, Germany and UK – are the "most important" export markets (graph 10.3.1). This may be interpreted as those markets where there is most interest in CFPs and the largest volumes traded. This preliminary result confirms the subjective impressions of many observers. A few correspondents, e.g. from Ireland and Switzerland, stated that a large part of demand for CFPs in their countries was covered by domestic sources. There seems to be a low interest in CFPs in south European, Japanese and Russian markets.

It is not yet possible to say what "market share" is taken by CFPs, nor indeed is there consensus on how the term "market share" should be understood in this context. Market shares by value of about 25% are claimed for the United Kingdom and about 20% in Poland (most likely non-labelled CFPs). In other markets, such as the Netherlands and Germany the share is claimed to be 4% and 1% or less respectively, which would seem to indicate that different concepts are being used.

GRAPH 10.3.1

Top ten certified forest product importing countries, 2001



[1] The vertical axis depicts the number of cases a country was mentioned in the survey of country correspondents. The categories 'first', 'second', etc. show the ranking given for the countries (e.g. 10 correspondents ranked the United Kingdom as the most important market, two as the second most and two as the third most) Thus the graph indicates the current relative importance of CFP importing countries.
Source: Network of UN/ECE region country correspondents on certified forest products markets, 2001.

The product groups where CFPs are available to the market are likewise steadily expanding. Worldwide about 20,000 product lines of CFPs are claimed to exist by the Global Forest and Trade Network of the World Wildlife Fund, with more than 2,000 product lines in the United Kingdom and about 300 to 400 in Germany. In more than eight of the most advanced markets in the UNECE region, CFPs are available across the whole spectrum of wood products, including paper, paperboard, panels, interior and exterior sawnwood and mouldings, furniture and do-it-yourself (DIY) products, including garden furniture. Following the more lenient FSC percentage-based claims policy, which is currently under review again by FSC, some players in the panel and paper sector have been quick to enter the market for CFPs. In the United Kingdom all major panel and most major paper types are now said to be available as CFPs although the volumes concerned may be small. In a few other countries CFPs are currently entering the intermediary product markets.

Contrary to the developments in the wood products markets, the development of markets for certified non-wood forest products has seen only limited progress. Two examples are nuts from Latin America and handicrafts,

although it is not known what certification scheme is involved.

Business-to-business market players close to consumers, such as in retail, do-it-yourself or home improvement markets, continue to be the strongest drivers for demand, especially in the United States and the United Kingdom. Companies selling CFPs see certification as a means for competitive advantage and to maintain or enhance an environmentally or socially responsible company or brand image, and to react to pressure from environmental groups. The latter driver is especially prominent in North America.

Anecdotal information on price premiums actually paid in the business-to-business market indicate difficulties in securing supplies of CFPs and premiums tend to occur in niche markets. However, it is too early to say how the situation will develop when certification is better established.

Up to now the large majority of CFPs available in the market bear the FSC label. While in most countries products with other certification systems labels are also available, these often cover a small range of products. In 2001 to 2002 the market share of CFPs and the availability of other than FSC certified products will see a further steep increase. Wood certified by several recently established national and international certification systems will increasingly be available in the markets in Europe and North America, including the Pan-European Forest Certification (PEFC) in Europe as well as the Sustainable Forestry Initiative (SFI).

The Global Forest and Trade Network (GFTN), designed by the World Wildlife Fund to create demand for CFPs through its Buyers and Producers Groups, is expanding by about 100 companies per year. The GFTN consists of about 720 members today. It is active in 18 countries worldwide and claims a 7% share of industrial wood use in the world (although the basis for this claim is not clear). More than half of these companies are located in western Europe, and more than 90% are in Europe or North America. Over the last year, however, the buyers group established in Brazil has succeeded in binding a considerable number of companies and targets a CFP market share of 10% by 2003. A similar share is envisaged by 2003 by the groups active in Germany, Belgium and the United States. An even bigger market share of 25% and one closer to 50% is the target of the groups in the Netherlands and in the United Kingdom respectively.

Today a lack of supply of CFPs is reported by the GFTN in all the three major European markets, the United Kingdom, the Netherlands and Germany, as well as in the United States. A lack of demand is expressed in several other countries.

10.4 Supply of CFPs

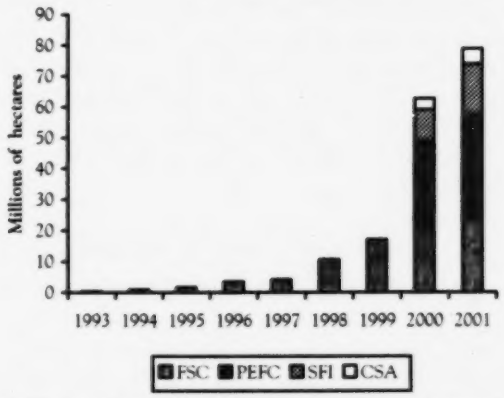
10.4.1 Forests certified

By mid-2001 the total area of forests certified[1] worldwide is about 80 million hectares or about 2.1% of the world's forests (FAO Forest Resource Assessment). The last year has seen an exponential increase of forest area certified according to different third party certification systems, including the FSC, the PEFC in Europe and the SFI in North America as well as the CSA system. Today, these four forest certification systems dominate the international market for forest certification.

There has been a tremendous increase in the total area of forests certified in 2000 and 2001 due to the entrance of three new third-party certification programmes that certify large areas of forests either due to regional certification approaches, such as the PEFC, or industrial forest certification, such as the SFI programme (graph 10.4.1). FSC, PEFC, SFI and CSA expect considerable further growth of certified forest areas by their schemes in the coming year.

GRAPH 10.4.1

Worldwide forest area certified under four main systems, 1993-2001



Sources: Forest Stewardship Council, 2001; Pan European Forest Certification, 2001; Sustainable Forestry Iniative, 2001; and Canadian Sustainable Forestry Certification Coalition, 2001.

The large majority of certified forest area consists of forests managed primarily for wood production, especially in the FSC system and the SFI programme. Forest certification up to now has clearly favoured large-scale industrial forest holdings. However, in both the United

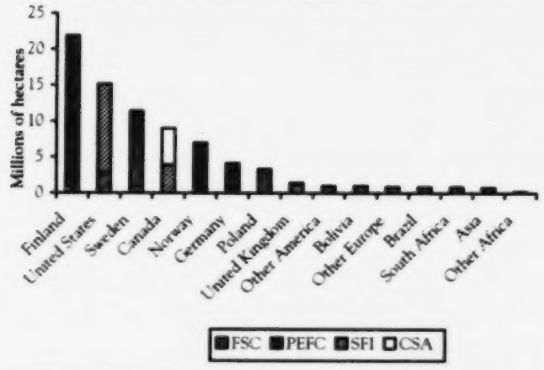
[1] Certification is understood here in the strict sense, requiring third party audit. Please note that ISO 14001 type process certification systems which usually do not lead to certified products in the market are not covered here.

States and western Europe, more than half of the wood supply comes from private non-industrial forest holdings. The PEFC system, and, once on stream in 2002, the American Tree Farm System, cover a large share of small-scale forest holdings and non-industrial forest holdings.

Finland and the United States are leaders in terms of forest area certified by third party certification (graph 10.4.2). In Europe around 28.5% of the existing forest area[4] is already certified, compared to around 6.7% of the forest area in the United States.

GRAPH 10.4.2

Certified forests able to deliver certified forest products, mid-2001



Note: The column for the United States in the graph above contains approximately 400,000 hectares of certified forests that are counted twice due to double certification.
Sources: Forest Stewardship Council, 2001; Pan European Forest Certification, 2001; Sustainable Forestry Initiative, 2001; and Canadian Sustainable Forestry Certification Coalition, 2001.

In addition to the four schemes depicted in the graph, a large number of national schemes exist or are being developed, including a Mandatory National Certification System in Russia, national Malaysian and Indonesian systems compatible with FSC, a Brazilian system and a pan-African certification system. The existing American Tree Farm System (ATFS) of approximately 36.5 million hectares is being further developed to include third-party audit in 2002. About two thirds of the ATFS overlaps with SFI-certified forest lands.

An overview of the different schemes and their characteristics can be found in the Confederation of European Paper Industries (CEPI) Comparative Matrix 2000, of which a revised version should be available later in 2001.[5] A more in-depth discussion on the different schemes and their development will be provided in a forthcoming UNECE/FAO *Geneva Timber and Forest Discussion Paper*.[6]

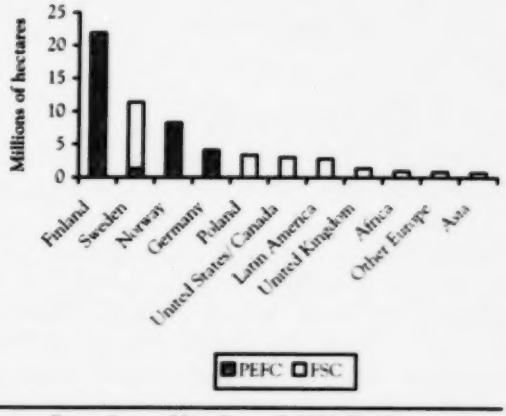
10.4.2 Supply of CFPs

When only those forests are taken into account that actually deliver CFPs to the market and can demonstrate that by a label, a different picture emerges. As neither the SFI nor the CSA systems in North America are currently able to label products, neither yet come into this category, although SFI is in the process of developing a logo which is expected in late 2001 and CSA has applied for PEFC membership and might use the PEFC logo.

The five countries with the largest area of forests certified by schemes that issue a product label would be potentially able to supply 125 million m^3 EQ of labelled CFPs annually from an area of about 50 million hectares (estimation based on UNECE/FAO TBFRA statistics for each country's average annual removals per hectare on forests available for wood supply multiplied by the certified forest area) (graph 10.4.3). However, considerably less than 100% of the wood from those forests is actually traded as CFPs. Nevertheless, the

GRAPH 10.4.3

Certified forests able to deliver *labelled* certified forest products, mid-2001



Sources: Forest Stewardship Council, 2001; Pan European Forest Certification, 2001; Sustainable Forestry Initiative, 2001; and Canadian Sustainable Forestry Certification Coalition, 2001.

[4] The reference to the existing forest area taken is based on TBFRA 2000 data on forest area, excluding other wooded land. The UNECE/FAO Temperate and Boreal Forest Resources Assessment published as *Forest Resources of Europe, CIS, North America, Australia, Japan and New Zealand* in a main report, a CD and on the UNECE Timber Committee website at: www.unece.org/trade/timber/fra

[5] See www.cepi.org

[6] "Forest certification in the ECE region: update summer 2001" by Eric Hansen, Heikki Juslin and Keith Forsyth, a UNECE/FAO *Geneva Timber and Forest Discussion Paper*, expected in September 2001.

potential growth of supply of CFPs is high.

As the graph also shows, close to 87% of potential suppliers of CFPs are located in Europe and close to 70% in the Nordic countries alone. However, as soon as the North American SFI and CSA systems are able to issue labels on forests certified by their schemes, the situation will become more balanced between the two continents, with further dramatic growth of the potential volume of CFPs.

Forest areas certified in tropical regions in general and supply of CFPs from these regions are very small in comparison with temperate forests as shown in the graph. Nevertheless, some tropical countries, especially Brazil, Indonesia and Malaysia, export CFPs to European markets, *inter alia* for garden furniture.

The largest exporters of CFPs are currently Sweden, Finland and Poland, all of which export a large share of production, especially to the United Kingdom and Germany, but also to the Netherlands, Belgium and other CFP importing countries, such as the United States. Also CFP supplier countries in Latin America, such as Brazil, and South Africa, as well as eastern European countries, export up to 100% of their CFP production into these markets.

For established suppliers of wood products to markets such as the United Kingdom, Netherlands and Germany, the main driver for certification often tends to be image and credibility. However, owing to pressure from environmental groups, supplying CFPs has also provided an opportunity of market access in these high value markets for new entrants, which often include price premiums.

10.5 Market characteristics

CFPs pass through many stages and intermediaries from forest to factory through processing and then to the stores. In total only about 1,400 chain-of-custody certificates have been issued to date worldwide, and few questions have been asked about the quality of the chain of custody provisions that are actually implemented. (This may change with sharper competition between certification schemes). More closely monitored constraints for CFP market development are the perceived high costs of certification compared to the benefits, the often low domestic demand both from final and intermediary customers and the low interest of forest owners.

One of the most important limitations to market development is the conflicting stakeholder interest behind different certification systems providing CFPs. This forces the forest industry and market intermediaries to handle different certificates or restrain from entering the CFP market. Therefore, the forest industry and trade are calling for mutual recognition between certification schemes. Mutual recognition was one of the dominating themes discussed in 2000 and 2001, with several international seminars organized on the topic, including one by FAO[7]. Recognition agreements between different schemes are being increasingly pursued, e.g. between FSC and Lembaga Ekolabel Indonesia of Indonesia, and between SFI and the ATFS in North America. The acceptance of full membership of CSA, SFI and the ATFS in the Pan European Forest Certification Council (PEFCC) indicates that this trend will continue in the coming year.

Standards of sustainable forest management or good forest management and their measurement are still a highly contentious issue. On the global, regional and national levels, the common understanding of what constitutes sustainable forest management has made huge progress in recent years, facilitated, *inter alia*, by FAO's work on criteria and indicators for sustainable forest management. Under the leadership of the FSC, standards for forest management unit or regional levels are increasingly incorporating or focusing on measurable performance standards. In the drawing up of such standards, broad public participation is increasingly accepted as an important quality criterion for the elaboration process.

To a lesser extent than standards for certification, the quality and different design of the different existing certification systems and certification procedures are another popular issue of debate.

In general, governments have not taken a stand in the certification debate, with some exceptions. Governments are actively driving certification efforts in only a few countries, including the Netherlands, Russia and several central and eastern European countries (e.g. Latvia, Romania and the Czech Republic) and some tropical countries.

10.6 Conclusion

Forest owners and forest industry in several regions have recently experienced the sustainable forest management certification wake-up call. In the last year CFPs from new large certification systems have started to enter the market. In 2001 and 2002 the CFP market will continue to be volatile and highly dynamic. This chapter attempted to give an update on the market situation of CFPs in the UNECE region, based on information available. Owing to lack of CFP information in customs classifications, and comprehensive and objective information, a statistical analysis of this new market sector is and will remain difficult.

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[7] www.fao.org/forestry/fop/fopb/trade/Fcert-e.stm

Chapter 11
Secondary processed wood products markets[1], including engineered wood products[2]

Highlights

- World trade of secondary processed wood products is expanding at a faster rate than trade in primary wood products.
- United States, Germany, France, United Kingdom and Japan account for 60% of world imports of secondary processed wood products.
- Changing import supply patterns to these markets differ by product and by country.
- Imports of secondary processed wood products from tropical producers are replacing primary product imports from these producers.
- Comparative advantage in the manufacture of secondary processed wood products is likely to shift increasingly to regions with low production costs.
- Engineered wood product markets are gaining market share in North America; for example, 33% of wood floor area is now built with wooden I-beams.
- North American glulam production increased by 14% in 2000.
- Laminated veneer lumber (LVL) production in North America declined by 6% in 2000.
- The value of world trade in wooden furniture ($29 billion) exceeds that of sawnwood ($25 billion) and wood-based panels ($16 billion).

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Secretariat introduction

This chapter is included in the *Review* in a continuing effort to analyse the markets for secondary processed wood products. It is divided into two sections: secondary processed wood products and engineered wood products.

The secretariat would like to thank Dr. Roger Cooper, Head of Department, Forest Products Marketing, University of Wales, Bangor and Ms. Stella Xenopoulou, Consultant, Wood and Furniture Industry Consultants, Dublin, Ireland for analysing the market developments for secondary processed wood products. The following analysis is a good indication of the demand for primary forest products, specifically sawn hardwood and softwood, as well as wood-based panels. Their work follows the initial work done by Mr. Pierre-Marie Desclos in the *Review 1999-2000* and a subsequent *Geneva Timber and Forest Study Paper*. While the Joint Forest Sector Questionnaire, upon which most of the statistical analysis in other chapters is based, now includes a questionnaire on secondary processed products, the responses in the first two years of its existence do not provide a sufficient basis for analysis. Therefore COMTRADE[3] was used again, like last year, as the database, hence the difference in periodicity (most current statistics being 1999).

Mr. Craig Adair, Director, Market Research, APA-the Engineered Wood Association and Dr. Al Schuler, Research Economist, United States Department of Agriculture, Forest Service, have updated their more lengthy analysis published in the *Review 1999-2000* in order to show the important market developments for engineered wood products. The secretariat sincerely appreciates that Mr. Adair and Dr. Schuler have analysed the markets and shown that engineered wood products elevate wood use to higher performance and make efficient use of the wood resource. Although UNECE/FAO does not collect statistics on engineered wood products, these value-added products are increasingly traded internationally and used in residential and non-residential construction. As noted in chapter 4 on demand drivers for Japanese wood markets, and again in sawn softwood, the engineered wood products and their component products are key components of the sawnwood and wood-based panels demand equation.

11.1 Introduction

Over the last 10 to 15 years many countries have pursued economic development policies of exporting secondary processed wood products (SPWPs) (e.g. furniture, joinery and shaped wood) in place of the raw material (logs) and primary products (rough sawnwood). These policies have been implemented by banning or placing quantitative limits on log and sawn timber exports, imposing export taxes on commodity exports encouraging inward investment in the manufacturing industries and by modifying concession agreements to include requirements for downstream processing.

Partly as a result of these policy initiatives, world trade in SPWPs expanded more rapidly than trade in primary wood products during the 1990s. Over the five years 1994 to 1999, world imports of primary wood products (logs, sawnwood, wood-based panels and pulp and paper) grew by 14% while imports of SPWPs rose by 54%.

This chapter first reviews the growth in trade in SPWPs over the 1994 to 1999 period, concentrating on three product groupings: wooden furniture, builders' carpentry and joinery and shaped wood. Specifically it: identifies the major world importers of these products and their changing significance; and analyses the patterns of import supplies to the five largest UNECE markets for each of the three product groups.

Secondly, it presents a brief analysis of the changing balance of primary and secondary products exports from tropical countries. Lastly, it analyses the developments in the markets for engineered wood products.

11.2 Imports of furniture, builders' carpentry and joinery, and shaped wood

These three product groups were selected as they comprised the highest value of SPWPs imports by UNECE countries in 1998 (excluding miscellaneous products)(Desclos, 2000). COMTRADE statistics for furniture, builders' carpentry and joinery and shaped wood were used in the analysis (table 11.2.1).

[3] UN trade database showing trade by direction for over 100 countries since 1960s for all SITC and HS codes. Based on national customs statistics.

TABLE 11.2.1

Products covered and their COMTRADE codes

	Code
Seats with wooden frames, upholstered	940161
Seats with wooden frames, other	940169
Wooden furniture of a kind used in offices	940330
Wooden furniture of a kind used in kitchens	940340
Wooden furniture of a kind used in bedrooms	940350
Other wooden furniture	940360
Parts of furniture	940390
Builders' joinery and carpentry of wood, including cellular wood panels, assembled parquet panels, shingles and shakes	4418
Wood (including strips and friezes for parquet flooring, not assembled) continuously shaped (tongued, grooved, rebated, chamfered, V-joined, beaded, moulded, rounded or the like) along any of its edges or faces, whether or not planed, sanded or finger-jointed	4409

Source: COMTRADE, 2001.

11.3 Major importers

In 1999 the United States imported the greatest value of each secondary processed wood product analysed in this chapter. However, in 1994, other countries imported more of certain products, as shown by world import values of the five largest importers of SPWPs in 1999, their shares of world imports in 1994 and 1999 and world import values (tables 11.3.1, 11.3.2, 11.3.3 and 11.3.4).

Sixty per cent of world imports of these products are concentrated in the five leading importing countries: United States, Japan, Germany, France and the United Kingdom. This is a higher concentration than for primary products, where the five leading importers account for 44% of world imports.

The United States dominates world imports of SPWPs, with shares ranging from 27% to 32%. The strength of the United States economy in the late 1990s compared with Europe and Japan led to substantial increases in the United States import shares across all product categories and the value of imports of all SPWPs more than doubled from $5 billion to $11 billion over the period. Japan, Germany and France lost ground in terms of their import shares while the United Kingdom maintained its position.

Of the three product groups, furniture clearly dominates world trade in SPWPs, accounting for 75% of the total. It is notable that the value of world trade of wooden furniture at $29 billion exceeds that of sawnwood ($25 billion) and wood-based panels ($16 billion). World

TABLE 11.3.1

Importers of selected SPWPs, 1994 and 1999.

Country	% of world imports	
	1994	1999
United States	20	29
Germany	20	13
United Kingdom	6	6
France	8	6
Japan	7	6
Total five countries	61	60
WORLD IMPORTS (billion $)	24.5	37.7

Note: Total of three product groups

Source: COMTRADE, 2001.

TABLE 11.3.2

Imports of furniture, 1994 and 1999

Country	% of world imports	
	1994	1999
United States	21	29
Germany	19	13
France	9	7
United Kingdom	6	6
Japan	7	5
Total five countries	62	60
WORLD IMPORTS (billion $)	18.6	28.8

Source: COMTRADE, 2001.

TABLE 11.3.3

Imports of builders' carpentry and joinery, 1994 and 1999

County	% of world imports	
	1994	1999
United States	14	27
Germany	30	17
Japan	6	7
United Kingdom	7	7
Austria	6	4
Total five countries	63	62
WORLD IMPORTS (billion $)	3.9	6.0

Source: COMTRADE, 2001.

TABLE 11.3.4

Imports of shaped wood, 1994 and 1999

Country	% of world imports	
	1994	1999
United States	23	32
Japan	13	9
Canada	5	6
Italy	7	6
United Kingdom	5	6
Total five countries	53	59
WORLD IMPORTS (billion $)	2.0	2.8

Source: COMTRADE, 2001.

trade in these products is also increasing at a much faster rate than primary wood products. Over the five year period world imports of furniture and joinery grew by 55% and shaped wood by 37% compared with increases for sawnwood of 1% and wood-based panels of 13%.

11.4 Import trade flows

11.4.1 Furniture

This brief analysis aggregates the various sub-components of wooden furniture mentioned above in table 11.2.1 and it should be pointed out that there may be substantial differences in the product mix of individual importing and exporting countries. In 1999, the 5 major importers of furniture are, in descending order: United States, Germany, France, United Kingdom and Japan (table 11.4.1).

The import supply pattern for European countries contrasts strongly with the United States and Japan. Europe's imports are drawn overwhelmingly from within Europe (eastern and western) while 60% of United States imports come from outside the North American continent, mainly from Asia and Europe. Japan is predominantly supplied from Asia followed by Europe, and the United States and Canada are minor suppliers in contrast to their high export shares for sawnwood.

Italy is the largest exporter of furniture worldwide, and the western European supplier to the three leading European importers—Germany, France and the United Kingdom—and other major suppliers are Denmark, Spain and Germany. Eastern European sources, principally Poland, account for one third of German imports.

The fastest growth in import supplies over the 1994 to 1999 period has come from countries where there has been substantial European, North American and Japanese investment in furniture production e.g. Poland, the Baltic States, Malaysia, Indonesia, China, Brazil and Mexico. The importance of these new furniture exporting countries is likely to grow in the future.

11.4.2 Builders' carpentry and joinery

The main products within this classification are windows, doors, parquet flooring and formwork. As with furniture there are important differences in the product mix for individual importing and exporting countries (table 11.4.2).

TABLE 11.4.1

Regions of origin of furniture imports for the five largest importing countries, 1999
(Percentage + billion $)

Supply region	*Importers*				
	United States	*Germany*	*France*	*United Kingdom*	*Japan*
North America	27	1	1	5	6
Western Europe	19	62	77	59	17
Eastern Europe and Russia	1	31	8	6	-
Asia	43	5	9	23	76
South America	9	1	4	7	-
TOTAL IMPORTS *(billion $)*	8.4	3.8	2.1	1.8	1.4

Note: COMTRADE's "Western Europe" includes Austria, Belgium, France, Germany, Liechtenstein, Luxembourg, Monaco, Netherlands and Switzerland. COMTRADE's "Eastern Europe" includes Belarus, Bulgaria, Czech Republic, Hungary, Poland, Republic of Moldova, Romania, Russian Federation, Slovakia and Ukraine. COMTRADE's "South America" includes Argentina, Bolivia, Brazil, Chile, Columbia, Ecuador, Falkland Islands (Malvinas), French Guyana, Guyana, Paraguay, Peru, Suriname, Uruguay and Venezuela.

Source: COMTRADE, 2001.

TABLE 11.4.2

Regions of origin of imports of builders' carpentry and joinery for the five largest importing countries, 1999
(Percentage + billion $)

Supply region	*Importers*				
	United States	*Germany*	*Austria*	*United Kingdom*	*Japan*
North America	75	1	-	6	33
Western Europe	5	66	75	52	30
Eastern Europe and Russia	-	22	22	5	3
Asia	9	11	2	17	31
South America	11	-	-	13	3
Africa	-	-	-	7	-
TOTAL IMPORTS *(billion $)*	1.64	1.01	0.22	0.39	0.42

Source: COMTRADE, 2001.

Some contrasts can be drawn with the supply pattern for furniture. The United States draws 75% of its supplies from Canada (27% for furniture) and this largely results from the strong commercial links between Canadian sawnwood exporters and the United States housing market. In Japan, the higher North American and European shares, compared with furniture, also reflect the growing penetration of the wooden housing market by the United States, Canadian, Finnish, Swedish and German timber exporters. The German and Austrian import supplies show close similarities with nearly 90% of imports being drawn from European sources, mainly from Scandinavia and central Europe. The pattern for the United Kingdom differs from Germany and Austria and results from long-term trade relations and high import dependence for sawnwood on various regions of the world. About half the United Kingdom's imports are drawn from Western Europe (principally Nordic countries), 17% from Asia (mainly Indonesia and Malaysia) and 13% from South America (mainly Brazil). The United Kingdom is the only country among the five with substantial imports from Africa, principally Ghana and Cote d'Ivoire.

A further contrast can be drawn between furniture and joinery in terms of regions of supply growth. The strongest growth in joinery supplies has been from the major sawnwood exporting regions and countries including North America, Nordic countries, central and eastern Europe, Malaysia, Singapore, Brazil, Chile and Ghana. This reflects the sawmilling industry's strategy of adding value to its raw material in its longstanding market in construction. In general the major sawnwood exporters' links with furniture manufacture have been weaker than with the construction sector.

11.4.3 *Shaped wood*

Shaped wood products represent the lowest unit value (and hence added value) of the three product groups, and levels of world trade are only 10% of the value of furniture. Most of the trade occurs within a region and has developed from established sawnwood trading links (table 11.4.3). United States import supplies come principally from Latin America (mainly Chile, Brazil and Mexico) and stem from the considerable investment in remanufacturing facilities in the sawmilling industry in these countries using plantation timbers e.g. *Pinus radiata*. These countries' exports of shaped wood are currently roughly three times the value of their joinery products. Canada supplies 25% of United States imports and 20% of Asian imports.

Canada's and the United Kingdom's imports are principally of softwoods drawn mainly from the United States and Scandinavia respectively. By contrast, the bulk of Japan's and Italy's imports are of tropical timbers, mainly dipterocarps from Indonesia and Malaysia (Japan), and a range of western African, south American and Asian species (Italy). In both countries they are widely used for interior joinery purposes. As with joinery products most of the export growth has come from traditional sawnwood suppliers extending their production into added-value products.

11.5 Trends in tropical SPWPs

The previous section showed the important role that tropical regions, particularly Asia, play in the import supplies of the major importing countries. This section examines the development of this trade in more detail. See also section 12.6 in the tropical timber chapter, which looks at trends from the exporters' point of view, whereas this section focuses on imports.

Secondary processed wood products are now a very significant part of exports of many tropical timber producing countries. During the 1990s the main commercial thrust of the leading tropical timber exporting countries was to develop secondary processing industries. This transformation was strongest in south-east Asia and South America but also occurred in a smaller way in some African countries. The main drivers of this change have been:

TABLE 11.4.3

Regions of origin of shaped wood imports for the five largest importing countries, 1999
(Percentage + billion $)

Supply region	*Importers*				
	United States	*Canada*	*Japan*	*Italy*	*United Kingdom*
North America	26	76	20	1	15
Western Europe	5	5	11	36	60
Eastern Europe and Russia	-	-	-	5	-
Asia	19	8	66	26	22
Latin America	50	11	3	8	-
Africa	-	-	-	24	1
TOTAL IMPORTS *(billion $)*	0.9	0.17	0.25	0.16	0.16

Source: COMTRADE, 2001.

1. The policy of governments to add value to their increasingly scarce raw materials. Policies have included log export restrictions, high export taxes on primary products and investment incentives.
2. Technological developments in the processing of plantation species (e.g. rubberwood) and lesser-used species.
3. Technology transfer from developed countries.
4. Inward investment by North American, Japanese and European companies.
5. Wage and cost advantages in exporting countries.
6. Falling tariffs under GATT/WTO agreements.
7. Rapidly growing domestic/regional economies providing expanding local markets.
8. Improved shipping services.
9. Export promotion.

The impact of these developments on the exports of primary versus secondary products of tropical timber producing countries has been dramatic in Asia, South America and Africa (table 11.5.1). Exports of secondary processed products from all three regions have grown by 140%, compared with a fall of 10% for primary products. The largest growth over the eight years was from Asian countries, but the most rapid growth occurred with exports from South America. The collapse of the Asian economies in 1997-1998 is clearly seen in the fall in exports of primary and secondary products between 1995 and 1998.

This rapid rise in export growth has been mirrored by substantial growth in imports of secondary processed wood products by European countries. The value of primary product imports fell by 12% from 1995 to 1998, while secondary products rose by 29% over the same period (table 11.5.2).

TABLE 11.5.2

EU imports of tropical primary and secondary wood products from tropical producing countries, 1995-1998

(Million $)

	1995	*1998*	*% change*
Primary products [1]	2,953	2,605	-12
Secondary products [2]	1,272	1,641	+29

[1] Logs, sawnwood, plywood, veneers.

[2] Wooden furniture and parts, builders' woodwork, other processed secondary wood products, cane and bamboo furniture and parts.

Source: ITTO, 2000.

Of the total EU imports of tropical SPWPs, approximately 70% comprise wooden furniture and furniture parts and builders woodwork (table 11.5.3). The total import value of SPWPs was 63% of the primary products value in 1998.

The following features of the two tables above are noteworthy:

1. In the EU as a whole, secondary products comprise 35% of the value of all tropical timber imports (primary and secondary) and in the six selected countries they account for 43% of imports.
2. In the United Kingdom, the value of secondary product imports exceeds primary products and the margin of difference is also very small in Germany.
3. Furniture and furniture parts are the largest component of imports in all countries, but builders woodwork accounts for between 25% and 32% of imports in the United Kingdom, Germany and the Netherlands.

TABLE 11.5.1

Comparative growth of primary and secondary processed wood products from major tropical exporting countries, 1990-1998

(Million $)

		1990	*1995*	*1998*	*% change 1990 to 1998*
Asia	Primary	7,393	5,991	5,079	-32
	Secondary	1,319	3,402	2,872	+178
South America	Primary	569	1,825	1,962	+245
	Secondary	96	490	552	+475
Africa	Primary	1,554	1,786	1,490	-4
	Secondary	21	33	43	+104
TOTAL	Primary	9,516	9,602	8,531	-10
	Secondary	1,436	3,925	3,467	+141

Note: The following countries are included in the regions noted in the table:

Asia: Indonesia, Malaysia, Philippines, Thailand, India, Myanmar, Fiji.

South America: Brazil, Ecuador, Colombia, Venezuela, Bolivia, Trinidad, Peru, Surinam.

Africa: Côte d'Ivoire, Ghana, Cameroon, Democratic Republic of Congo, Togo, Gabon, Central African Republic, Liberia.

Source: ITTO, 2000.

4. Penetration levels of secondary processed products into southern European countries are lower then in the northern European countries.

Within the aggregated product groups shown in table 11.5.3, the main types of furniture and furniture components imported from tropical timber exporting countries are living and dining room and garden furniture. The principal items of builders' woodwork are doors, windows, mouldings and flooring.

The significance of European markets for these exports differ by country and region and by product (table 11.5.4). The largest exporters are Malaysia, Indonesia and Thailand and most of these and other Asian exporters' sales are directed to Japan, the United States and other countries in the pacific region.

South American exports, predominantly from Brazil, are shipped primarily to the United States and Europe (United Kingdom, Germany, Netherlands and France).

TABLE 11.5.3

Imports of tropical secondary processed wood products by category in selected EU countries, 1998
(Million $)

	Wooden furniture	*Builders' wood-work*	*Other secondary wood products*	*Cane and bamboo furniture*	*Total secondary products*	*Total primary products*
Austria	7	3	3	1	14	19
Belgium/Luxembourg	71	19	25	16	131	228
Germany	119	103	60	43	325	328
France	145	26	32	26	229	397
Netherlands	136	60	17	8	221	355
United Kingdom	193	93	51	29	366	354
Subtotal of above	671	304	188	123	1,286	1,681
TOTAL EU	813	347	242	239	1,641	2,605
% of secondary products	(50%)	(21%)	(15%)	(14%)	(100%)	

Source: ITTO, 2000.

TABLE 11.5.4

Markets for secondary tropical wood products by principal exporters, 1998

Exporter	*Main products*	*% of exports*	*Main importers*
Malaysia	Furniture & parts	73	United States, Japan, Singapore, United Kingdom
$1,250 million	Builders joinery	14	Japan, United Kingdom, Singapore, Republic of Korea
	Mouldings	13	Japan, United States, Australia, Taiwan Province of China
Indonesia	Furniture & parts	32	Japan, United States, Malaysia, Taiwan Province of China
$737 million			
	Builders joinery	55	Japan, United Kingdom, Singapore, Republic of Korea
	Mouldings	12	Taiwan Province of China., Italy, United States, Singapore
Thailand	Furniture & parts	85	Japan, United States, United Kingdom, Taiwan Province of China
$553 million			
	Builders joinery	6	Japan
	Mouldings	9	Japan, United States, Netherlands, Germany
Brazil	Furniture & parts	61	United States, United Kingdom, France, Netherlands, Germany
$459 million			
	Builders joinery	29	United States, United Kingdom, Germany
	Mouldings	10	United States, Canada, United Kingdom
Côte d'Ivoire	Furniture & parts	3	France
$21 million	Builders joinery	18	Italy, France
	Mouldings	79	Italy, United Kingdom, Spain, France
Ghana	Furniture & parts	61	United Kingdom, Germany
$14 million	Builders joinery	4	United Kingdom, Italy
	Mouldings	35	United Kingdom

Source: ITTO, 2000.

Only in the case of Africa, where Ghana and Côte d'Ivoire account for the bulk of exports, is Europe the largest market. Italy, United Kingdom, France and Germany are the main destinations.

11.6 Conclusions on SPWPs

Four key factors are driving the rapid growth in international trade in SPWPs. First, exporters of primary products are increasingly adopting a business strategy of adding value to their basic products to improve profitability and to avoid the strong cyclical movements associated with commodity products.

Second, locational shifts are taking place in the manufacture of these SPWPs reflecting regional differences in cost competitiveness. Whereas the cost competitiveness of primary products (e.g. sawnwood and plywood) depends largely on raw material costs, with SPWPs, processing costs (labour, capital, energy) are the main factors differentiating high from low cost producers. In these respects comparative advantage in manufacture is tending to shift from western Europe to eastern Europe (e.g. Poland, Baltic States), Asia (Indonesia, Malaysia, Thailand, Viet Nam, China), Latin America (Brazil, Chile, Mexico) and Africa (Ghana, Côte d'Ivoire).

Third, technology transfer facilitates these regional shifts in production. Fourth, international agreements reducing tariffs and other trade barriers are creating new international trading opportunities.

As a result of these developments it is likely that international trade in SPWPs will continue to grow more rapidly than primary products. In addition, the share of production of SPWPs from lower cost producing countries in the developed world will rise.

11.7 Engineered wood products markets in 2000 and 2001

Last year, the authors reported on world production and trade of glulam timber beams, I-beams and laminated veneer lumber (LVL). This report focuses on world production of glulam and North American production of I-beams and LVL. Nearly all I-beams are produced in North America and a high share of structural LVL production takes place in North America. Unfortunately, official government data sources are not yet conveniently available to report these products on a regular basis and thus industry statistics are cited here.

11.7.1 Glulam

World glulam timber production increased by 19% in 2000 to 3.1 million cubic metres, undoubtedly a record year (table 11.7.1). Most of this increase can be attributed to increased glulam demand in Japan. Although Japanese wooden housing starts actually declined by 2% in 2000, glulam consumption grew. Records show that imports increased by 55% in 2000 and much of this volume came from Europe. Japanese domestic production increased by 29%. These increases can be attributed to changes in housing quality laws and the realization that dry glulam timbers perform better than green solid sawn timbers owing to their structural strength and stability. Increased glulam timber consumption can be expected in future years as glulam becomes even more popular in Japan.

North American glulam production increased by 14% in 2000 and most of this increase can be attributed to increased domestic demand. In the past decade, increased production of North American glulam has been in the form of "stock beams". These standard sizes have grown in popularity in both residential and non-residential building construction. APA's outlook for North American domestic market growth is 1% to 3% annually based on new technology to improve glulam performance and increased acceptance of stock beams.

TABLE 11.7.1

Glulam production by region and countries, 1995-2000

(1,000 m³)

	1995	1996	1997	1998	1999	2000
World	**1,761.3**	**1,974.6**	**2,128.6**	**2,159.9**	**2,562.2**	**3,060.7**
Europe[1]	855.0	870.0	992.5	1,035.7	1,253.2	1,500.0
Russia[2]	-	-	-	38.0	41.0	45.0
Japan[3]	208.1	340.1	385.0	374.2	483.7	622.3
North America[4]	698.2	764.5	751.1	712.0	784.3	893.4

Sources: 1. European Glued Laminated Timber Industries; 2. Estimated from Japan imports by adding 25%; 3. APA Tokyo Office (from Japan import data); and 4. APA-The Engineered Wood Association, 2001.

New technologies include the use of beams made with LVL tension laminates and beams incorporating a tension layer of a synthetic fibre reinforced polymer. LVL is currently being used by some manufacturers; however, the use of synthetic fibre reinforcement may take a few years to develop. In addition, glulam timber is being manufactured in sizes to match the sizes of I-beams. When I-beams and glulam have the same depth, it is easier to finish residential ceilings without extra work. Glulam manufacturers in North America are trying to bring glulam forward from the "old generation" of wood products to be on par with the "new generation" of engineered wood products.

The world outlook for glulam in 2001 and 2002 is somewhat uncertain as the economies of many countries are projecting slower growth. It is possible that the increased use of glulam in Japan can provide positive growth for this industry sector for the next couple of years.

11.7.2 Wooden I-beams

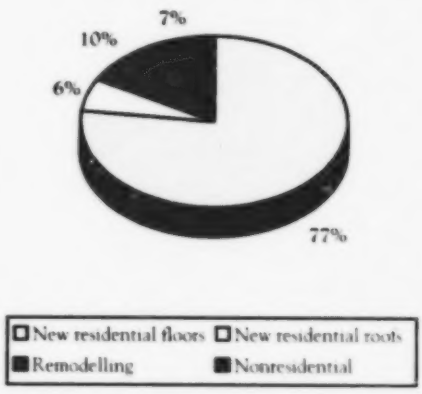
Wooden I-beams have gained a significant foothold in North American residential construction. About 33% of the wood floor area in United States and Canadian homes is built with I-beams that have substituted for solid sawn joists or beams. I-beam production has declined only twice in the past decade, in 1995 and 2000. The decline in 1995 can be attributed to a reduction in housing starts and surveys showed that market share actually increased in 1995. North American I-beam production declined 3% in 2000 (table 11.7.2). One third of the decline can be attributed to fewer housing starts and two thirds were likely due to a loss in market share to conventional sawnwood. Weaker demand for sawnwood caused prices to plunge in 2000 and some smaller home-builders switched from I-beams back to solid sawnwood for floor joists. Larger builders have documented the benefits of using I-beams and continue to use them. Large construction companies like the steady prices of I-beams and other engineered wood products and they also like the long-term performance. When I-beams are used, there are fewer "call backs" from angry homeowners with squeaky floors.

The outlook for I-beams is dependent on continued market share gains in residential floor construction. I-beams could grow from a 33% market share to 40% and as much as 50% of the wood floor market in the next five years (APA-The Engineered Wood Association). However, it is recognized that market penetration has been rapid and will slow at some point in the future. Production increases will likely average about 5% annually over the next five years.

I-beams have a variety of uses in North America (graph 11.7.1). An estimated 77% are used as joists or beams in single family and multifamily residential floors. Ten per cent are used as roof rafters and floor joists in remodelling or room additions to homes. Seven per cent are used in floor and roof construction in non-residential buildings such as factories, warehouses and office buildings. Six per cent are used as roof rafters in new home construction.

GRAPH 11.7.1

I-beam end uses in North America, 2000



Source: APA-The Engineered Wood Association, 2001.

TABLE 11.7.2

Wooden I-beam production, 1995-2000

(1,000 m³)

	1995	1996	1997	1998	1999	2000
North America	**833.7**	**1,045.8**	**1,316.7**	**1,493.1**	**1,879.5**	**1,818.6**
Canada	81.9	113.4	168.0	193.2	340.2	363.3
United States	751.8	932.4	1,148.7	1,299.9	1,539.3	1,455.3

Source: APA-The Engineered Wood Association, 2001.

11.7.3 Laminated veneer lumber (LVL)

LVL production in North America declined 6% in 2000 to 1.4 million cubic meters (table 11.7.3). Most of this production was softwood LVL and the decline was due to the decline in I-beam production as well as inventory reductions in the distribution channels. Approximately 60% of LVL is used for flanges of I-beams, 30% for small beams and 10% for scaffold planks, concrete form bracing and miscellaneous uses.

In addition to the reported North American LVL volumes, there may be an additional 5% to 6% of hardwood LVL. There are only a few manufacturers of hardwood LVL in North America and their production is used for kitchen cabinet and furniture components in addition to structural applications.

The outlook for LVL growth is uncertain at this time. At least one new I-joist plant is planned to use finger-jointed sawnwood flanges instead of LVL and some of the larger I-joist manufacturers are lowering costs by converting at least some of their production to solid sawnwood flanges and structural composite lumber (for example, long strand OSB). At the same time, LVL manufacturers are experimenting with the use of lower cost species. Approximately 3% to 4% annual growth can be expected in the future.

TABLE 11.7.3

LVL production, 1995-2000

(1,000 m³)

	1995	*1996*	*1997*	*1998*	*1999*	*2000*
North America	**792.9**	**906.2**	**1,076.1**	**1,217.6**	**1,472.5**	**1,381.9**
Canada	c	c	c	56.6	113.3	124.6
United States	c	c	c	1,161.0	1,359.2	1,257.3

Note: c = Combined to avoid disclosure.

Source: APA-The Engineered Wood Association, 2001.

Chapter 12
Tropical timber market developments[1]

Highlights

- In 2000, the global tropical timber sector continued to recover from the sharp downturn due to the 1997 and 1998 Asian crises.
- China is driving the tropical log trade and will likely soon become the largest importer of primary topical timber products.
- With increased orientation towards value-added processing, the value of the trade of secondary processed tropical wood products is approaching that of the declining value of primary product trade.
- The United States is the single largest importing country of secondary processed wood products, and imports the greatest value of tropical secondary products. The EU 15-country bloc imports the largest value of secondary products, mostly furniture.
- Tropical log production and exports continued to decline in 2000, while sawnwood, veneer and plywood production and trade expanded.
- Reconstituted panels, such as MDF, will become increasingly important for tropical countries in utilizing tropical raw materials efficiently and as substitutes for plywood and sawnwood.
- Tropical sawnwood imports by EU countries fell by 3% in 1999 but rose by 7% in 2000. Imports of other primary tropical timber commodities by the EU fell during 1999 and 2000.
- Certification of sustainable forest management is a hot topic and tropical countries are producing some certified forest products, either under a national label or under an international scheme's label.
- Tropical timber prices have recovered generally from the 1997 and 1998 crises, and in the case of mahogany sawnwood, have reached record levels.
- Several major discrepancies between exporters' and importers' reports of trade flows indicate significant volumes of undocumented trade in logs and sawnwood.

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Secretariat introduction

The secretariat would like to express its sincere appreciation for this continued close cooperation with our colleagues in the International Tropical Timber Organization, specifically Drs. Steven E. Johnson and Michael J. Adams and Ms. Masaki Miyake. Drs. Johnson and Adams are the principal authors of the ITTO *Annual Review and Assessment of the World Timber Situation 2000* and *Market Information Service*, respectively, from which this chapter was drawn. Like our *Review*, ITTO's *Review* is the basis for a market discussion each May, which has also contributed to the updated analysis below.

Readers will note that some of the terminology differs slightly from the rest of the *Review* but the authors have focused the following analysis on the tropical trade developments of the UNECE region. ITTO categorizes its members into producer and consumer countries. Only ITTO member countries are covered.

12.1 Introduction

During 2000 the global tropical timber sector continued to recover from the sharp downturn of 1997 to 1998, with many markets stable or improving. China is now driving the tropical log market and will likely soon become the largest overall importer of primary tropical timber products. Many producer countries continued their shift to secondary processed products exports in 2000, with the value of trade in these products continuing to rise towards the value of primary tropical timber products trade.

Auditing of forest management and the related issue of timber certification remained topical issues in 2000, with forestry operations in many countries seeking some form of certification, either through the Forest Stewardship Council (FSC) or the Pan European Forest Certification system, or through other avenues (e.g. ISO 14000 or national standards authorities). Malaysia's National Timber Certification Council and Indonesia's ITTO-supported Ecolabelling Institute should both soon begin marketing tropical certified forest products with their own labels. Many tropical countries are unwilling to seek certification solely through international bodies like FSC. This is leading to a proliferation of national schemes and preliminary discussions regarding a framework for mutual recognition of schemes.

This analysis is based on 2000 statistics because data for 2001 were not available to ITTO at the time of preparation of this *Review*. However, it is likely that tropical timber markets also showed some weakness in 2001.

12.2 Production

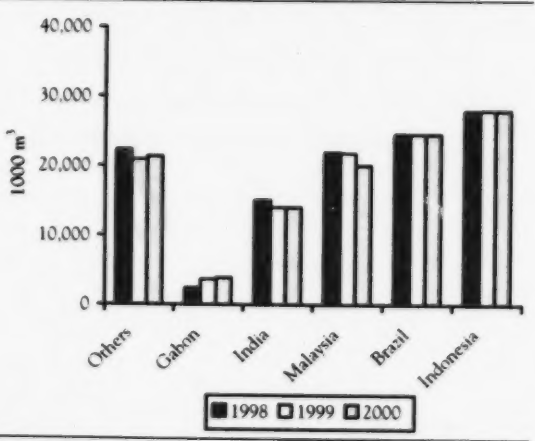
12.2.1 Logs

The production of tropical industrial roundwood ("logs") in ITTO producer member countries totalled 113.5 million m^3 in 1998. This total was down 9% from 1997 levels, with a further decrease of 1% to 112.5 million m^3 in 1999. Log production by ITTO producer member countries further declined to 111.3 million m^3 in 2000. Of the top five, Indonesia, Brazil and Gabon were stable or increasing during the period 1998 to 2000, whereas Malaysian and Indian production declined (graph 12.2.1). Malaysian production fell from about 30.3 million m^3 in 1996 to 20 million m^3 in 2000, a reduction of almost 34% in just five years and nearly 50% in the last decade. This decrease reflects lower harvests in both Sabah and Sarawak, with the latter's harvests from its permanent forest estate now at the annual level of 9 million m^3 recommended by the ITTO mission to Sarawak in 1990.

Tropical log production is dominated by four producing countries (Indonesia, Brazil, Malaysia and India), which together comprised around 80% of ITTO production in 1999 to 2000 (graph 12.2.1). All figures are based on total estimated removals, including those from forest conversion operations. Indonesian reports indicate that in recent years the Government has converted 3.4 million hectares of forests into plantations, 2.4 million of which are palm-oil estates. Most of the cleared forests were classed as secondary degraded and reportedly did not contribute significantly to Indonesian log production. Indonesian log production is probably significantly higher than the estimates given here, however, with some sources estimating the illegal harvest to be almost equal to

GRAPH 12.2.1

Major tropical log producers, 1998-2000



Source: ITTO, 2001.

or even greater than the official figures of under 30 million m^3.

Unfortunately, Indonesia, similarly to Brazil and India, has never provided production figures to ITTO, necessitating the use of estimates based on reported exports and assumed domestic consumption. Gabon is the only country with increasing log production, due largely to increased exports to China.

Four other ITTO producer members, Myanmar, Cameroon, Papua New Guinea, and Côte d'Ivoire, had log production exceeding 2 million m^3 in 1999. Of these, only Côte d'Ivoire reported significantly increased production in 2000.

Two ITTO consuming countries possess significant tropical timber resources: Australia and China. Aggregate production from these sources for 1999 was estimated at 250,000 m^3, 20.6% down from 1998, with the bulk of this drop coming from China's southern provinces of Hainan Island and Yunnan. Log production from these areas is consumed almost entirely domestically. China is reducing domestic felling for environmental reasons and the abolition of import tariffs is encouraging increased log imports to meet domestic needs.

The Asia-Pacific region produced just over 62% of ITTO members' tropical hardwood logs in 1999 (table 12.2.1). Asia's share of ITTO log production declined slightly to 60.7% in 2000. Africa's share of production remained at about 10 to 11% in 1999 to 2000, and Latin American production remained at about 28%.

TABLE 12.2.1

Tropical forest products production, 1998-2000
(1,000 m^3)

	1998	1999	2000
AFRICA			
Logs	11,080	11,747	12,486
Sawnwood	2,130	2,050	2,174
Veneer	561	629	796
Plywood	355	369	410
ASIA PACIFIC			
Logs	70,199	69,427	67,225
Sawnwood	17,925	18,400	17,992
Veneer	1,078	1,242	1,514
Plywood	12,388	13,284	13,177
LATIN AMERICA/CARIBBEAN			
Logs	32,254	31,286	31,609
Sawnwood	12,675	12,545	12,769
Veneer	204	197	194
Plywood	1,214	1,305	1,436
TOTAL			
Logs	113,533	112,459	111,320
Sawnwood	32,730	32,994	32,934
Veneer	1,843	2,068	2,504
Plywood	13,957	14,958	15,023

Source: ITTO, 2001.

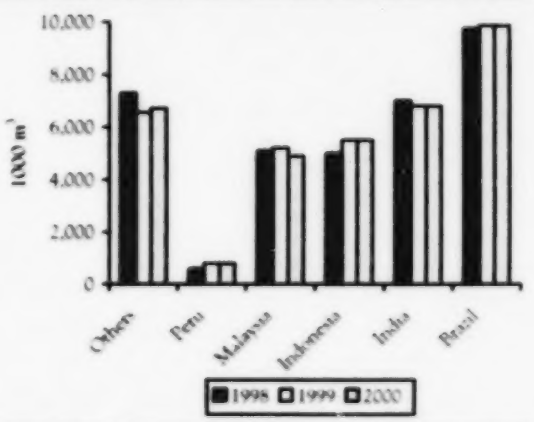
12.2.2 Sawnwood

Production of tropical sawnwood in ITTO producing countries totalled 33 million m^3 in 1999, up slightly (0.8%) from 1998. Production declined slightly to 32.9 million m^3 in 2000, due to production declines in Asia. Africa, which makes up less than 6% of ITTO production, still suffers from weak infrastructure and environmentally demanding export markets that constrain major investments in wood processing. However, production is gradually rising owing to log export bans and requirements for further processing in many countries. Latin America, with around 36% of ITTO sawnwood production, decreased production by 1% in 1999 but increased almost 2% in 2000. Despite recovering by almost 3% in 1999 from the crises levels of 1998, Asian production continued a steady decline, dropping 2% to under 18 million m^3 in 2000 for a total 17% decline in the last five years. The Asian region accounted for around 56% of sawnwood production in producer countries in 1999 and 2000.

The major ITTO producers of tropical sawnwood in the 1998 to 2000 period, as ranked by 1999 production, were Brazil (9.9 million m^3), India (6.8 million m^3), Indonesia (5.5 million m^3) and Malaysia (5.2 million m^3) (graph 12.2.2). Production by the first three was stable in 2000, but Malaysia's sawnwood production declined by 6% to under 5 million m^3, moving it well below Indonesia for the second year in a row. Malaysian production has declined by 36% in the last five years and has driven Asian production downward in the same period. The country's declining sawnwood production is due to falling log production and the increasing use of available logs in

GRAPH 12.2.2

Major tropical sawnwood producers, 1998-2000



Source: ITTO, 2001.

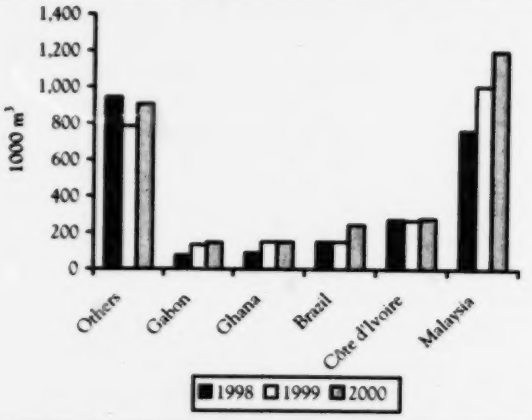
veneer, plywood and other secondary processing mills. The top four tropical sawnwood producing countries comprised just under 79% of ITTO sawnwood production in 1999 to 2000. Peru, which overtook Colombia as ITTO's fifth largest sawnwood producer, produced 791,000 m^3 in 1999.

Four other countries (Colombia, Ecuador, Côte d'Ivoire, and Cameroon) produced over 500,000 m^3 of tropical sawnwood in 1999. Production increased or remained stable in 2000 in all of these countries.

Consumer countries produced 1.7 million m^3 of tropical sawnwood in 1999, down by 13% from 1998 levels, with most of the decrease due to China, Japan and the EU. Further decreases in these countries, despite a recovery in the Republic of Korea, led to a further 6% decline in 2000.

GRAPH 12.2.3

Major tropical veneer producers, 1998-2000



Source: ITTO, 2001.

12.2.3 Veneer

Production of tropical veneer in ITTO producing countries totalled almost 2.1 million m^3 in 1999. Veneer production figures should not include veneer used in domestic plywood production and therefore represent only the production of veneer intended to be traded as such. Veneer production in producing countries surged by 12% in 1999, and again by 21% to over 2.5 million m^3 in 2000. The 1999 and 2000 increases were due largely to similar increases in Malaysia's veneer production, which climbed by 58% from under 760,000 m^3 to 1.2 million m^3 between 1998 and 2000.

Asia produced over 1.2 million m^3 of tropical veneer in 1999, Africa produced 629,000 m^3 and Latin America produced 197,000 m^3. Aggregate production rose in Africa (up 27%) and Asia (up 22%), while Latin America was stable in 2000 (graph 12.2.3).

Malaysia's dominant role is clear. Malaysia's veneer production made up 49% of ITTO's producer production in 1999 and 40% of total ITTO veneer production. Côte d'Ivoire is ITTO's second largest producer, with production rising to 280,000 m^3 in 2000. Ghana (150,000 m^3 in 1999, up 67% from 1998) overtook Gabon and equalled Brazil's veneer production as ITTO's third largest tropical veneer producer in 1999. Gabon's production also increased sharply in 1999 and 2000 as a result of new capacity. Two other ITTO producer members (Philippines and Cambodia) had veneer production of at least 75,000 m^3 in 1999. Cambodian production has recently seesawed, tumbling by 58% to 75,000 m^3 in 1999 before rebounding by 60% to 120,000 m^3 in 2000 owing to changes in China, its main market for veneer.

ITTO consuming countries produced 421,000 m^3 of tropical veneer in 1999, down 6% from 1998 levels, and remained at that level in 2000. Production of veneer in consumer countries in 1999 was split between the EU (57%), China (including Hong Kong and Macao S.A.R.s, 17%), Japan (17%) and Taiwan Province of China (9%). Japan, China and Taiwan Province of China consume virtually all of the veneer they produce, however, while about one quarter of the total produced in Europe is re-exported (mainly to other European countries). EU production dropped by nearly 5% to 240,000 m^3 in 1999 as a result of a decline in Portugal but remained stable in 2000. Japan's production of tropical veneer fell by 7% to 70,000 m^3 in 1999 and remained at this level in 2000. Japan's tropical veneer production has more than halved in the last five years as its tropical veneer and plywood industries contracted together with log availability and the economy.

12.2.4 Plywood

Production of plywood in ITTO producing countries totalled almost 15 million m^3 in 1999. Plywood production in producing countries increased by 7% in 1999 and remained at this level in 2000. Plywood production by Indonesia, by far the top ITTO producer, rose by 9% from 1998 levels to about 8.5 million m^3 in 1999 (graph 12.2.4). Malaysia's plywood production also rose by 6% in 1999 to 4.1 million m^3, before falling 3% to 4 million m^3 in 2000. Overall, however, Malaysian plywood production has increased by 8% in the last five years, while Indonesian production has declined 8% in the same period. The Asian region produced 13.3 million m^3 of plywood in 1999 (about 89% of total producer member production), Latin America produced just under 1.3 million m^3 (9%) and Africa produced 369,000 m^3 (2%). Asia, Latin America and Africa consumed 16%, 63% and 58% respectively of their

production domestically in that year. Asia's low consumption/production ratio is due to the exports led industries of Malaysia and Indonesia. The low domestic utilization of plywood in Asia is an anomaly, with domestic markets consuming a majority or a near majority of all other primary tropical timber products in all three regions.

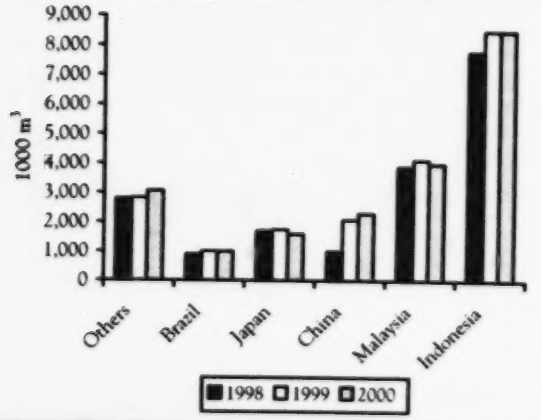
Production in China, which overtook Japan as the third largest producer of tropical plywood, climbed by 110% to 2.1 million m^3 as a result of a sharp increase in tropical log imports and a corresponding decrease in plywood imports. Chinese plywood production rose further by 10% to 2.3 million m^3 in 2000. China has more than quadrupled its tropical plywood production in the last five years to keep pace with the demand of its growing construction sector.

Tropical plywood production in Japan increased slightly by 3% in 1999 before dropping 9% to 1.6 million m^3 in 2000 (graph 12.2.4). Brazilian production increased by 11% to 1 million m^3, and remained at that level in 2000. Taiwan Province of China, the Republic of Korea, France and India all produced at least 300,000 m^3 of tropical plywood in 1999. After being hit by the Asian turmoil in 1998, the Republic of Korea's plywood production rebounded by 50% from 300,000 m^3 in that year to 450,000 m^3 in 1999. Korea's upward trend in tropical plywood production continued in 2000 as its construction market strengthened.

ITTO consuming countries produced 5.3 million m^3 of plywood in 1999 (about 26% of total ITTO production), a 29% surge from 1998. ITTO consuming countries' production further increased by 2% to 5.4 million m^3 in 2000, led by the increases in Chinese and Korean production. Large declines in tropical plywood production were observed in Taiwan Province of China (in 1999) and Japan (2000), owing primarily to log shortages. Taiwan Province of China's tropical plywood production has fallen by 36% in the last five years, while Japan's production has more than halved in the same period. Japanese domestic plywood production is now well below plywood imports, after 50 years of domestic production exceeding imports ended in 1995. Japanese plywood manufacturers are increasing the proportion of softwoods used in plywood production, as well as investigating lamination and other techniques to allow re-use of concrete form-ply. Several plywood manufacturers from Japan, Taiwan Province of China and elsewhere have established joint ventures for plywood and other panel production in tropical countries.

GRAPH 12.2.4

Major tropical plywood producers, 1998-2000



Source: ITTO, 2001.

12.2.5 Reconstituted panels

Substantial quantities of reconstituted panel products, particularly MDF, are now being produced in several tropical countries, primarily in Asia. Many new plants are now operational, or soon will be, to meet the expected surge in demand for such products. Reconstituted panel products will become increasingly important as limits on the growth of plywood production are reached and as more countries move further into downstream processing and attempt to utilize available resources more efficiently. These panels substitute for plywood and sawnwood in many uses, resulting in decreasing or slower growth in production of these traditional tropical timber products in many countries.

12.3 Exports

The composition of exports for 1998 to 2000 from the ITTO producing regions continues to change (tables 12.3.1, 12.3.2 and 12.3.3). The contribution of logs to total tropical timber exports of ITTO producers (in terms of both value and roundwood equivalent volume) fell dramatically from over 60% in the 1980s to around a quarter in 2000. Only Africa continues to export a higher volume equivalent of logs than processed products, with log exports making up 38% of log production and 54% of total roundwood equivalent export volume in 1999.

The Asia-Pacific region is rapidly replacing log exports with the export of processed products, spurred by Indonesian plywood exports and Malaysian exports of sawnwood, veneer and plywood. Asian log exports made up 23% of total Asian export volume in 1999 (15% of log production).

Latin American tropical log exports are a small fraction of both production and total exports. Total roundwood equivalent export volume as a percentage of log production increased from 8% to 12% in Latin America from 60% to 65% in Asia and from 70% to 72%

TABLE 12.3.1

Composition of exports by producing regions, 1998-1999

(1,000 m³ roundwood equivalent)

Region	Log production			Log exports			Processed exports			Total exports		
	1998	1999	2000	1998	1999	2000	1998	1999	2000	1998	1999	2000
Africa	11,080	11,747	12,486	4,367	4,442	4,831	3,372	3,818	4,119	7,739	8,259	8,950
Asia-Pacific	70,199	69,427	67,225	7,971	10,249	9,237	33,930	34,462	34,500	41,901	44,711	43,737
Latin America	32,254	31,286	31,609	137	137	136	2,563	3,162	3,777	2,700	3,298	3,913
TOTAL	113,533	112,459	111,320	12,475	14,826	14,204	39,865	41,442	42,396	52,340	56,269	56,600

Notes: Totals may not sum exactly due to rounding. "Processed exports" include sawnwood, veneer and plywood.

Source: ITTO, 2001.

TABLE 12.3.2

Tropical timber export ratios, 1998-1999

Region	Log exports as % of production			Log exports as % of total exports			Processed exports as % of total export		
	1998	1999	2000	1998	1999	2000	1998	1999	2000
Africa	39	38	39	56	54	54	44	46	46
Asia-Pacific	11	15	14	19	23	21	81	77	79
Latin America	0	0	0	5	4	3	95	96	97
TOTAL	11	13	13	24	26	25	76	74	75

Source: ITTO, 2001

in Africa. Total ITTO producer member exports in roundwood equivalent increased by 8% from 52.3 million m³ to 56.6 million m³ in 1998 to 2000, owing to the recovery of African and Asian log exports and increased sawnwood exports by all three regions.

12.3.1 Logs

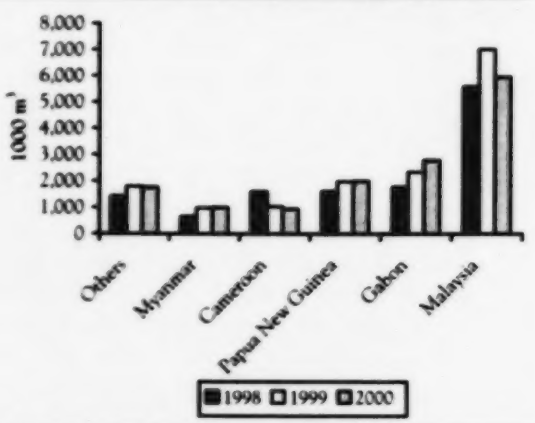
Total ITTO producer member exports were just over 14.8 million m³ in 1999 (graph 12.3.1). Log exports by producer members decreased by 4% in 2000 to 14.2 million m³.

Malaysia continues to dominate the trade in tropical logs with almost 7 million m³ exported in 1999, constituting 47% of ITTO producer member exports. Malaysia's log trade in 1999 jumped sharply in volume by 25% from 1998 levels but decreased to under 6 million m³ in 2000. The increase in 1999 was due mainly to increased exports to China. Malaysia's major log customers are all in Asia, with China (including Taiwan Province of China), Japan and India accounting for 82% of the reported log export volume in 1999.

Papua New Guinea is the third largest tropical log exporter, with 1999 exports of almost 2 million m³, up from 1.6 million m³ in 1998 but still far below the pre-crises levels of almost 3 million m³ per year. The bulk of Papua New Guinea's log exports (71% in 1999) go to Japan and the Republic of Korea, with the Chinese market growing rapidly to about 17% of Papua New Guinea's exports in 1999, mainly in lower grades. Log exports by Myanmar (the fifth largest log exporter at almost 1 million m³) increased by almost 50% in 1999.

GRAPH 12.3.1

Major tropical log exporters, 1998-2000



Source: ITTO, 2001.

TABLE 12.3.3

Tropical forest products exports, 1998-2000
(1,000 m³)

	1998	1999	2000
AFRICA			
Logs	4,367	4,442	4,831
Sawnwood	1,307	1,414	1,504
Veneer	371	443	506
Plywood	125	175	183
ASIA PACIFIC			
Logs	7,971	10,249	9,237
Sawnwood	3,565	3,723	4,102
Veneer	954	1,041	905
Plywood	11,143	11,178	11,006
LATIN AMERICA/CARIBBEAN			
Logs	137	137	136
Sawnwood	817	988	1,103
Veneer	126	99	77
Plywood	364	512	706
CONSUMERS			
Logs	180	279	234
Sawnwood	475	618	579
Veneer	94	112	81
Plywood	617	645	634
TOTAL			
Logs	12,655	15,107	14,437
Sawnwood	6,164	6,743	7,288
Veneer	1,546	1,694	1,570
Plywood	12,249	12,510	12,530

Source: ITTO, 2001.

Myanmar's main trading partners are India, Thailand and China (although there is a major discrepancy between the figures provided by Myanmar and those provided by China).

Africa supplies the majority of the remainder of world tropical hardwood log exports. Gabon and Cameroon are the region's largest exporters (and ITTO's second and fourth largest), but the Democratic Republic of the Congo, Liberia, the Central African Republic and Côte d'Ivoire also exported substantial quantities of logs in 1999. Gabon's exports increased by 32% in 1999 as trade with China increased. Gabon's exports grew another 19% to almost 2.8 million m³ in 2000. Cameroon imposed limitations on some species of log exports in 1999, leading its exports to plunge by 36% and a further 8% in 2000 to under 1 million m³. Ghana, a former top exporter, has banned exports of tropical hardwood logs since 1996. Liberia's civil war (which led to drastic decreases in official log production and exports for most of the 1990's) was resolved in 1998, leading to a resumption of legal log exports. Exports subsequently jumped by 157% in 1999, with most of these logs destined for Europe. Liberia announced in late 2000 that it intends to consider a ban on log exports to promote the establishment of a domestic wood processing industry.

Following International Monetary Fund (IMF) guidance, Indonesia resumed log exports in 1999 after a 13-year moratorium. Official log exports in 1999 were recorded at almost 300,000 m³ by Indonesian customs authorities, and were mostly destined for India and China. However, Malaysia alone reported imports of almost 600,000 m³ of Indonesian logs in 1999 compared to less than 8,000 m³ of exports to Malaysia reported by Indonesia, while China's reported imports (nearly 400,000 m³) were almost five times the reported Indonesian level. This evidence supports claims of many observers that substantial undocumented Indonesian log exports exist. Indonesia announced in late 2000 that it would re-implement its log export ban to attempt to reduce illegal exports and to ensure sufficient log supplies for domestic mills, although it was unclear when the ban would come into effect again.

Re-exports of logs by consumer countries increased by 64% to 296,000 m³ in 1999, 33% of which was accounted for by re-exports from Hong Kong S.A.R. to China. Most of the remainder was inter-EU trade. Consumer countries did not in general provide detailed breakdowns of re-exports (value or destination). Consumer country re-exports of tropical logs declined by 21% to 234,000 m³ in 2000.

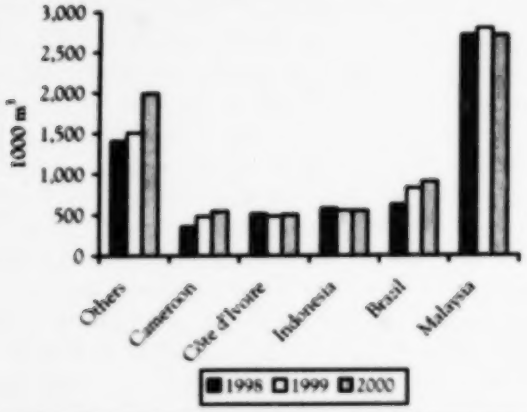
12.3.2 Sawnwood

ITTO producers exported a total of 6.1 million m³ of tropical sawnwood in 1999, up almost 8% from 1998 (graph 12.3.2). Malaysia continues to dominate the trade in tropical sawnwood, with the 2.8 million m³ exported in 1999 constituting 46% of total ITTO producer member exports. Malaysia's sawnwood exports rose by 2% in 1999 as its major markets of Thailand and Japan recovered. Malaysia's other major sawnwood customers in 1999 were the Netherlands, the Philippines and the large Chinese market (including Hong Kong S.A.R. and Taiwan Province of China). There were large discrepancies between the trade flows reported by Malaysia and by its trading partners China and Thailand in 1999.

Indonesian exports of sawnwood fell 5% to 548,000 m³ in 1999 but were stable in 2000. Indonesia's major sawnwood market is Japan, but its reported trade with China in 1999 was far smaller than China's report. Sawnwood exports from Malaysia decreased in 2000, while exports by Brazil and Côte d'Ivoire increased slightly. Cameroon's exports have grown steadily, by 35% in 1999 and a further 14% in 2000, to reach 540,000 m³ as mills processed logs banned from export. In addition to the countries in the graph, Ghana and Thailand exported over 200,000 m³ of sawnwood in 1999 respectively.

GRAPH 12.3.2

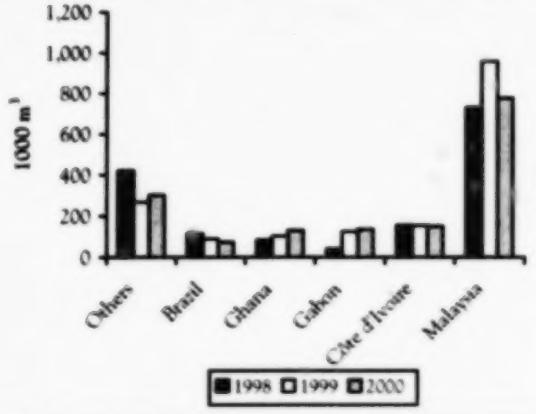
Major tropical sawnwood exporters, 1998-2000



Source: ITTO, 2001.

GRAPH 12.3.3

Major tropical veneer exporters, 1998-2000



Source: ITTO, 2001.

ITTO consumer countries exported 493,000 m³ of tropical sawnwood in 1999, primarily (37%) from the EU countries. EU exports of tropical sawnwood increased from 173,000 m³ in 1996 to 181,000 m³ in 1999. The Netherlands, a larger exporter of tropical sawnwood than most producing countries, was the main EU tropical sawnwood exporter at 70,000 m³ in 1999. Mostly high-value species of sawnwood (or higher value-added products) are being exported by the Netherlands, primarily to other countries in Europe. Hong Kong S.A.R. was the biggest consumer tropical sawnwood exporter at 170,000 m³ in 1999, mostly re-exports to China (although the figures reported by both partners diverge widely). Total consumer country exports of tropical sawnwood fell to 469,000 m³ in 2000.

12.3.3 *Veneer*

ITTO producing member veneer exports were just under 1.6 million m³ in 1999, up 9% from 1998 (graph 12.3.3). ITTO producer country veneer exports dropped 6% in 2000 to under 1.5 million m³. Malaysia continued to be ITTO's dominant veneer exporter, with exports of 957,000 m³ in 1999 accounting for 61% of total ITTO producer member exports. Malaysian exports are mainly directed to China, Taiwan Province of China, the Philippines, the Republic of Korea and Japan.

Côte d'Ivoire was the second largest tropical veneer exporter in 1999 at 153,000 m³, a decrease of 2% from the 1998 figures. Côte d'Ivoire's veneer markets are the EU (mainly Italy, Spain and Germany) and the United States. Gabon was the third largest ITTO tropical veneer exporter, with exports more than tripling to 124,000 m³ in 1999 as new capacity came on stream. Cambodia's veneer exports plunged by 62% to 68,000 m³ in 1999 as exports to China (its main market) were replaced by China's increasing imports of peeler logs.

The EU accounted for 95,000 m³ of total consumer country tropical veneer exports of 110,000 m³ in 1999, with 2000 levels of EU exports dropping to 67,000 m³. France, Spain, the Netherlands and Germany are the largest EU tropical veneer exporters. Consumer country exports of tropical veneer are often of much higher value than those from producer countries. Total exports by ITTO consumer countries decreased to 81,000 m³ in 2000.

12.3.4 *Plywood*

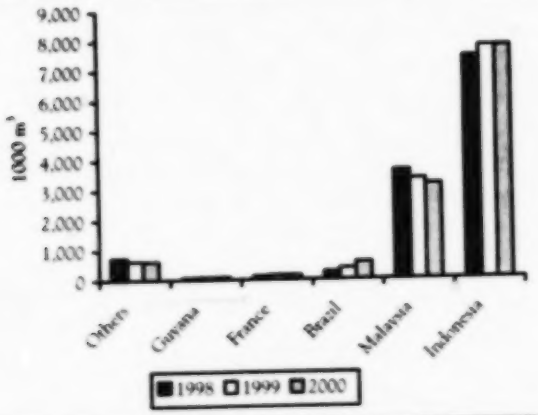
In 1999, ITTO producer plywood exports rose only 2% to just under 12 million m³, the only product not showing a recovery from depressed 1998 export levels (graph 12.3.4). Tropical plywood exports by producers remained flat in 2000, still 1.3 million m³ less than the amount exported in 1997. Indonesia continued to dominate the trade in tropical plywood with the 7.8 million m³ exported in 1999 constituting 65% of total ITTO producer member exports, although this was down from 84% in 1992. Indonesia's exports were estimated to have fallen slightly in 2000 owing to declining Chinese imports, instability in many regions of the country and difficulties in obtaining logs, blamed by many mills on illegal exports.

Malaysia is Indonesia's major competitor in the tropical plywood trade. Malaysian exports decreased by 8% to 3.3 million m³ in 1999, and dropped further to 3.2 million m³ in 2000. Malaysia was a major supplier of the Chinese plywood market and has been hard hit by China's switch to log imports. Malaysia's rapid growth in plywood exports up to 1997 (when exports approached

4 million m³) was due to the construction of new plywood mills in Sabah and Sarawak to process formerly exported veneer logs. These two eastern Malaysian states account for almost all of the country's plywood exports. Malaysia's exports are now mainly to Japan, the United States and Singapore.

GRAPH 12.3.4

Major tropical plywood exporters, 1998-2000



Source: ITTO, 2001.

Latin American plywood exports increased 41% in 1999 to 512,000 m³ owing to an 18% jump in Brazil's exports to 383,000 m³. Brazil's tropical plywood exports further increased to 574,000 m³ in 2000. The United States and the EU (mainly the United Kingdom, Germany and Belgium) are the major markets for Brazil's hardwood plywood. Africa's plywood exports remained relatively minor at 175,000 m³ in 1999 but have grown rapidly in the past 5 years due to new mills in Cameroon and Gabon.

Tropical plywood exports from the EU dropped 31% in 1999, driving ITTO consumer country exports down by 21% to 490,000 m³ (still more than three-quarters from the EU). Consumer country exports fell again to 484,000 m³ in 2000.

12.4 Imports

Major ITTO importers, defined here as those with imports of at least 100,000 m³ of one or more tropical products, have varying dependence on tropical timber (table 12.4.1). The table indicates in which products each country qualifies as a major importer by denoting the relevant figures in bold; only China and Taiwan Province

TABLE 12.4.1

Tropical proportion of total imports by major ITTO importers, 1999

	Proportion (%)			
	Logs	*Sawnwood*	*Veneer*	*Plywood*
Consumer members				
Belgium	0.9	**14.9**	32.2	**57.8**
China	**47.5**	**53.8**	**99.2**	**91.5**
Hong Kong, S.A.R.	**52.1**	**94.0**	61.4	94.0
Taiwan Province of China	**63.1**	**27.7**	**91.1**	**56.9**
France	**43.5**	**8.2**	28.0	**35.1**
Germany	**5.4**	**2.6**	30.9	**33.4**
Italy	**9.9**	**5.5**	33.3	**29.2**
Japan	**21.3**	**7.0**	45.5	**90.3**
Republic of Korea	**14.6**	**39.0**	45.5	**94.7**
Netherlands	20.5	**10.7**	30.3	**42.9**
Portugal	**25.7**	27.0	16.4	13.0
Spain	**14.1**	**4.5**	37.8	10.4
United Kingdom	7.6	**3.0**	10.0	**67.1**
United States	0.0	**0.8**	9.1	**67.5**
Producer members				
Brazil	30.7	**99.8**	98.1	100.0
India	**80.6**	37.1	18.4	36.6
Malaysia	**100.0**	**100.0**	100.0	100.0
Philippines	**62.7**	**80.6**	**96.4**	80.0
Thailand	**82.3**	**83.2**	71.4	90.5

Note: Bolded percentages indicate countries qualifying as *major* importers of tropical timber.

Source: ITTO, 2001.

of China qualify as major importers of tropical timber under this criterion in all primary product categories. Of the ITTO consumer members in the table, China (including Taiwan Province of China) appears to be the most dependent on tropical imports, with a significant proportion of its imports of tropical origin.

Unsurprisingly, given the dominance of tropical plywood in international plywood trade, most of the countries in the table have a fairly high dependence on tropical plywood imports, with the Republic of Korea, Japan and China dependent on tropical sources for over 90% of total imports (although this dependence is decreasing). Tropical sawnwood has a low market share in most non-tropical countries, with only China (including Hong Kong S.A.R.) dependent on it for half or more of its sawnwood imports. Only Hong Kong S.A.R. and Taiwan Province of China amongst major consumers imported a greater proportion of tropical than non-tropical logs in 1999. In contrast to consumer countries, most of the major ITTO producer country importers in the table depend on tropical imports for the majority of their imported wood needs. This is changing, however, with for example, India, the Philippines and Thailand now sourcing substantial quantities of log imports from non-tropical areas.

Europe's imports have increased slightly over the past five years, as Spain, Portugal and France have offset decreased imports by northern EU countries and finished products have replaced logs (graph 12.4.1). Taiwan Province of China's imports have moved steadily lower due to increased non-tropical imports and a slowing economy, while Japan has yet to and may not recover from the 1998 crash. However, China's imports have surged, led by increased log imports.

12.4.1 Logs

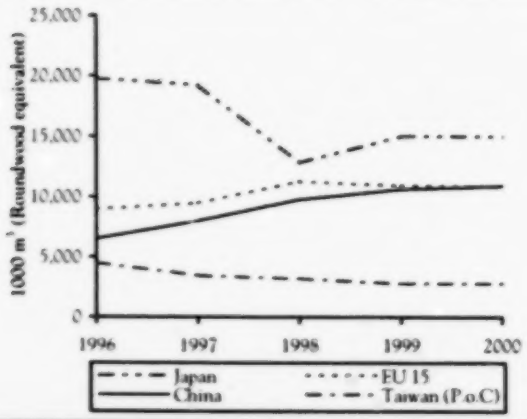
Total imports of tropical hardwood logs by ITTO members rose 23% to 15.9 million m^3 in 1999, about 5.3% (or 0.8 million m^3) greater than total log exports by all members. The gap between reported imports and exports in 2000 increased to 13% (about 2.1 million m^3) indicating greater pressure on non-ITTO members, forecasting errors or most likely, a combination of these. Differences between reported ITTO imports and exports is made up by legitimate log exports from Indochina, the Solomon Islands, Paraguay and non-member tropical African countries, plus unrecorded or under-reported exports from both members and non-members.

Of the top ITTO tropical log importers in 1998 to 2000, ranked by import volume in 1999, China overtook Japan as the world's largest importer of tropical logs, with about 4.8 million m^3 imported in 1999 (up 74% from 1998) (graph 12.4.2). China's growing economy, a ban on domestic harvesting and a zero tariff on log imports were the main driving factors for this sharp rise. China's import levels leapt another 10% in 2000 to 5.3 million m^3, consolidating it as ITTO's largest tropical log importer with almost one third of total ITTO log imports. China's tropical log imports have soared over fivefold in the last five years, with Malaysia, Gabon and Papua New Guinea the main sources. China's import of non-tropical logs has also expanded rapidly, with Russia providing the bulk of an estimated 7 million m^3 in 2000. If China's log imports continue to grow as expected, it will soon replace Japan as the world's top log importer, both tropical and temperate combined.

Japan was the second largest ITTO tropical log importer, with imports of just over 3.5 million m^3 in 1999, up just 3% from the depressed level of 1998. Japanese

GRAPH 12.4.1

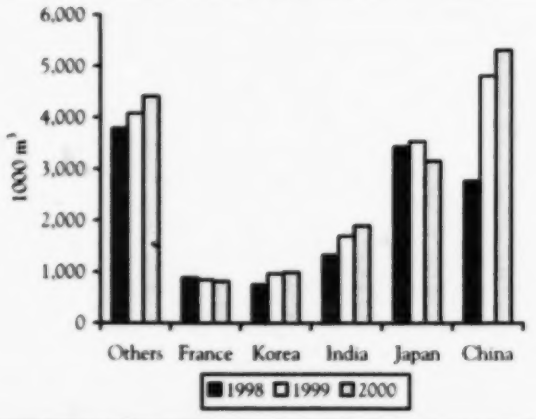
Imports of tropical wood products, 1996-2000



Source: ITTO, 2001.

GRAPH 12.4.2

Major tropical log importers, 1998-2000



Source: ITTO, 2001.

demand for tropical logs continued to be met primarily (63%) by Malaysian exports in 1999. Japan imported almost 1 million m^3 of logs from Papua New Guinea and over 50,000 m^3 from Africa (mainly Gabon and Cameroon) in 1999. Japanese tropical log imports fell by 11% in 2000 owing to its slowly recovering economy, reduced supplies from Malaysia and an increasing reliance on softwood logs. Russia is now Japan's major log supplier, with imports of close to 6 million m^3 in 1999. Larch is the preferred species for plywood manufacture, and with prices 40% below the cheapest tropical logs, it appears certain to gain further market share.

India is the third largest importer of tropical logs, at 1.7 million m^3 in 1999 (up 28% from 1998), mostly from Malaysia and Myanmar but with an increasing component of African logs.

The Republic of Korea is also a major ITTO log importer, absorbing almost 1 million m^3 in 1999 (up 29% from 1998), from Papua New Guinea (39%) and Malaysia (36% of total imports, down from 71% in 1993). The Republic of Korea's imports increased by another 3% in 2000 as its economy continued recovering. The Republic of Korea's imports of logs from Africa were 251,000 m^3 in 1994, but the ban on exports from Ghana (Republic of Korea's main African supplier in that year) led to a sharp drop in imports from that continent. The Republic of Korea's current main African suppliers are Gabon and Cameroon, from which it imported a total of 19,000 m^3 in 1999. Much of the Republic of Korea's tropical log supply is now being sourced from the Solomon Islands, which provided almost 125,000 m^3 of logs in 1999.

The EU countries imported 2.5 million m^3 of tropical logs in 1999, most of which came from African producers. European log imports fell 3% in 1999, due to the increase in Africa's exports to Asia and log export restrictions. France remains the largest of the EU log importers; its imports decreased by 8% in 1999 to 815,000 m^3 and remained at this level in 2000. The bulk of France's tropical log supplies come from Gabon, Cameroon, the Democratic Republic of the Congo and Liberia. Italy, Spain and Portugal are also major European log importers, each with over 360,000 m^3 of log imports in 1999. European log imports decreased a further 8% in 2000 to just over 2.3 million m^3.

Several ITTO producing countries have become importers of logs, indicating the extent of wood shortages in their domestic forest sectors. India (1.7 million m^3), Malaysia (677,000 m^3), Thailand (386,000 m^3), and the Philippines (366,000 m^3) were the major ITTO producer country importers of tropical logs in 1999, reflecting resource scarcity and increased timber demand in these countries. Total imports of tropical logs by ITTO producing members rose by 44% to 3.2 million m^3 in 1999, and a further 17% to just over 3.8 million m^3 in 2000, reflecting the recovery in many producer economies.

12.4.2 Sawnwood

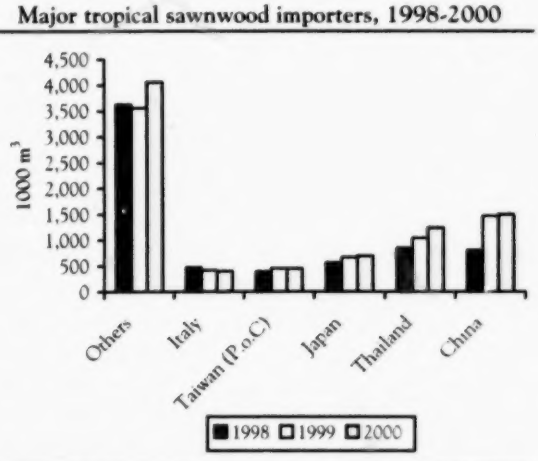
Total ITTO imports of tropical sawnwood increased 13% to almost 7.6 million m^3 in 1999 and a further 10% to over 8.3 million m^3 in 2000. The 1999 figure is almost 1 million m^3 greater than total ITTO exports, with the gap due to the same factors discussed under logs. With 1999 imports of nearly 1.5 million m^3, China has overtaken Thailand as the top ITTO sawnwood importer, with an 83% surge in 1999 and a further increase of 2% in 2000 (graph 12.4.3). China's tropical sawnwood imports are mainly from Indonesia (40%) and Malaysia (38%). China's and Taiwan Province of China's (the fourth largest tropical sawnwood importer) combined imports accounted for 34% of ITTO consumer imports in 1999.

After its imports of tropical sawnwood plummeted from 2.1 million m^3 in 1996 to 845,000 m^3 in 1998, Thailand rebounded by importing over 1 million m^3 (up 23%) in 1999 as its large furniture and secondary processing industries started recovering. Thai imports recovered a further 19% to over 1.2 million m^3 in 2000.

Both Thailand's and Japan's tropical sawnwood imports are primarily from Malaysia (84% and 48%, respectively). Japan also imported substantial quantities of sawnwood from Indonesia (40%) in 1999. Japan remained ITTO's third largest tropical sawnwood importer in 1999 as its imports increased by 17% to 661,000 m^3. Its imports increased another 5% to 691,000 m^3 in 2000. Japanese imports of tropical sawnwood have

GRAPH 12.4.3

Major tropical sawnwood importers, 1998-2000



Source: ITTO, 2001.

fallen by almost 50% since 1996, while its imports of temperate sawn softwood (primarily from Canada and increasingly from Nordic countries) have remained strong, growing from around 8 million m^3 in 1999 to 9 million m^3 in 2000.

Malaysia, the Netherlands, the United States, Spain, the Republic of Korea and the Philippines were also major importers, each with over 300,000 m^3 of sawnwood imports in 1999. Imports by the Netherlands, the Republic of Korea and the Philippines were primarily from Malaysia and to a lesser extent Indonesia. Malaysia's imports were from Indonesia (although no corresponding trade flow was reported by Indonesia. The United States, Spain, the Republic of Korea and the Philippines imports were from Latin America and Africa. As the height of the bar for "others" in graph 12.4.3 indicates, the tropical sawnwood market is the most diversified of all primary tropical timber products, with the five largest importers accounting for less than half of total ITTO imports in 1999.

Total tropical sawnwood imports by EU countries fell by over 3% in 1999 to 2.2 million m^3, primarily as a result of to import declines in Italy and Spain. More than half of this was supplied by Asian producers, principally Malaysia and Indonesia. Côte d'Ivoire, Cameroon, Brazil and Ghana supplied virtually all of the remainder of EU imports. EU imports increased almost 7% in 2000 to nearly 2.4 million m^3 due to increases in the United Kingdom, Portugal and Spain.

Italy is the largest importer of tropical sawnwood in the EU, absorbing 419,000 m^3 in 1999 (down 11% from 1998) and 400,000 m^3 in 2000. The Netherlands (385,000 m^3), Spain (351,000 m^3), France (245,000 m^3) and Belgium (235,000 m^3) were other major EU tropical sawnwood importers in 1999. All these countries, except the Netherlands, increased their imports of tropical sawnwood in 2000.

12.4.3 Veneer

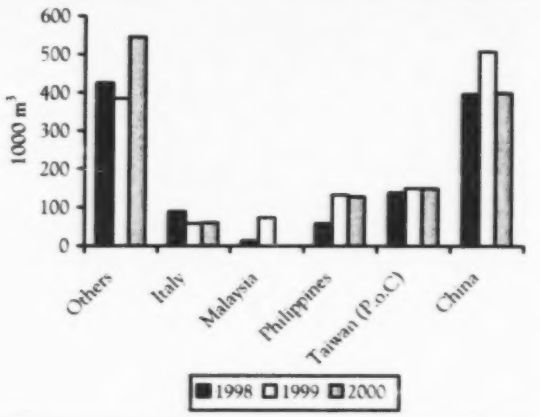
Total ITTO imports of tropical veneer increased 16.5% to just over 1.3 million m^3 in 1999 (graph 12.4.4). The rise in imports was due primarily to increasing demand by China and Taiwan Province of China which rose 28% and 8% respectively. While China's imports decreased by 21% to 400,000 m^3 in 2000, Taiwan Province of China's remained stable.

Four out of the five top veneer importers are Asian countries, with imports sourced primarily from Malaysia. The majority of European imports are from African producers (mainly Côte d'Ivoire, but increasingly also from Gabon and Ghana). Malaysia's surge in imports in 1999 was reported as being sourced largely from Indonesia, although no corresponding trade flow was reported by Indonesia.

The EU absorbed 206,000 and 246,000 m^3 of tropical veneer in 1999 and 2000 respectively, around one-fifth of total ITTO imports. Japan imported 51,000 m^3 of tropical veneer in 1999, 2% less than in 1998. Japan's tropical veneer imports decreased by another 12% to 45,000 m^3 in 2000. Overall, ITTO tropical veneer imports fell slightly in 2000 to just under 1.6 million m^3.

GRAPH 12.4.4

Major tropical veneer importers, 1998-2000



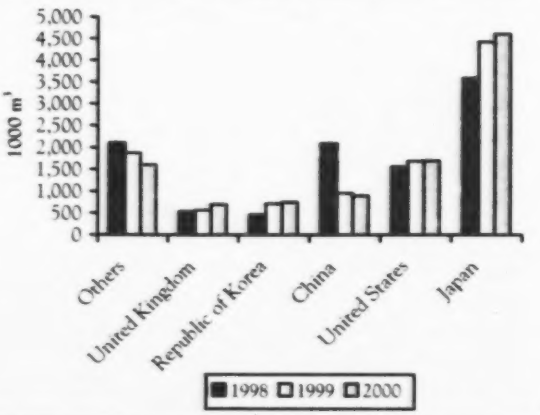
Source: ITTO, 2001.

12.4.4 Plywood

Total ITTO imports of tropical plywood fell by 1.2% to just under 10.2 million in 1999, despite a 23% increase in Japanese demand (graph 12.4.5). Imports increased

GRAPH 12.4.5

Major tropical plywood importers, 1998-2000



Source: ITTO, 2001.

slightly in 2000 to just under 10.3 million m^3. Exports of tropical plywood by ITTO members continue to substantially exceed aggregate imports by members, indicating the dominant position of ITTO producers in world markets for this product. The majority of all tropical plywood imports came from Indonesia and Malaysia (62% and 37% respectively in 1999 for the top importer, Japan).

Japan continues to replace domestic plywood production with imported plywood (tropical and non-tropical) and substitutes such as OSB and MDF. Its tropical imports climbed 4% in 2000, to 4.6 million m^3, although its construction sector remained relatively flat. Japan ranks first among tropical plywood importers. The increase in plywood imports by Japan is at least partially due to its difficulty in obtaining tropical logs for domestic production in the face of competition from China. Low prices also made imported plywood more attractive than domestic production in 1999 and 2000. Japan is now importing small quantities of low-priced tropical plywood from China, which was overtaken by the United States with 1.7 million m^3 as ITTO's second major plywood importer in 1999. China, with 953,000 m^3, dropped to ITTO's third largest importer, following a 54% plunge in 1999 and a further 6% decline to 900,000 m^3 in 2000. Chinese imports have more than halved since 1998 as authorities moved to increase domestic plywood production from imported logs to boost employment and offset reduced domestic log supplies. Tariffs on imported plywood are 15%, compared with zero for logs.

The United States imported almost 1.7 million m^3 of tropical plywood in 1999 (up 8% from 1998), 49% from Indonesia, 26% from Malaysia and most of the rest from Latin America. United States imports rose another 1% in 2000.

EU imports of tropical plywood totalled just under 1.7 million m^3 in 1999, level with 1998. EU imports are led by the United Kingdom, Germany and the Netherlands. Most of the EU's tropical plywood also came from Indonesia and Malaysia, with Brazil and intra-European trade also playing a fairly large role in many countries' imports. China is beginning to export small amounts of tropical plywood to the EU, particularly to its largest plywood importer, the United Kingdom. European imports of tropical plywood dropped by 6% to under 1.6 million m^3 in 2000 due to declines in Germany and Italy.

The Republic of Korea (710,000 m^3) and Taiwan Province of China (384,000 m^3) were also substantial tropical plywood importers in 1999. After halving from 991,000 m^3 in 1996 to 456,000 m^3 in 1998, Korean tropical plywood imports rebounded by 56% in 1999 and a further 6% to 750,000 m^3 in 2000 as its construction sector started recovering. Indonesia has traditionally supplied most of the Republic of Korea's plywood imports, but Malaysia increased its share from 18% in 1994 to 28% in 1999.

12.5 Price developments of tropical timber

13.5.1 Logs

Real (1990) FOB prices for most important species of African log exports were relatively stable or declining during the 1999 to 2000 period. Real prices of mahogany (acajou) and, particularly sapelli, rose gradually in the last quarter of 1999 owing to the introduction of an export ban by Cameroon on logs of sapelli, iroko, sipo and other valuable species in mid-1999. Real prices for mahogany continued rising in the first quarter of 2000 and firmed at around \$236/m^3 before declining sharply during the second and third quarter of 2000 (despite a surge in mid-2000) in United States dollar terms, though they were stable or rising in French franc terms. In late 2000, mahogany prices were at \$201/m^3, a record low. This was due to a further weakening of the French franc and the euro compared with the United States dollar. From January to September 2000, the French franc and the euro had devalued by 18% and 14%, respectively, which has offset local currency price rises in these species. After peaking at \$283/m^3 in early 2000 owing to the log export ban, euro prices for sapelli were stable through 2000, although in dollar terms they declined steadily to reach a low of \$244/m^3 despite a surge in mid-2000.

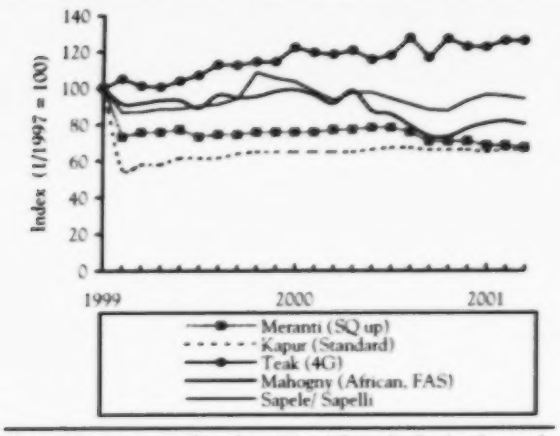
Although the prices for African logs were somewhat depressed and stagnant for much of 1998, by 1999 their recovery was more pronounced than that of most species of Asian logs (graph 12.5.1). The current strength of European demand is fuelling the acceptance of higher euro prices for popular species of African logs.

After the sharp drop during the Asian crises of 1997 and 1998, most species of Asian logs have been recovering steadily. Most have traded at real prices between \$120 and \$150/m^3 from the end of 1998, still a long way from 1996 and 1997 price levels. Kapur log prices recovered slightly in 1999 and stabilized in the second and third quarters of 2000 at around \$134/m^3 before jumping to \$139/m^3 in late 2000. Real FOB prices for Selangan batu, meranti and keruing logs showed a slightly more marked recovery in 1999 and 2000. These species were trading at \$144/m^3, \$151/m^3 and \$144/m^3 in late 2000 as export markets (particularly China) increased orders.

In comparison to African log prices, Asian log prices are still 25 to 33% below their levels in January 1997. This is because Africa exports timber primarily to Europe

GRAPH 12.5.1

Tropical log prices, 1999-2001



Note: SQ up is sawmill quality, 4G is 4th grade, FAS is first and seconds (highest quality).
Source: ITTO, 2001.

and China, where the impact of the 1997 to 1998 Asian economic crises was relatively small, while Asia primarily exports to Japan, the Republic of Korea and Thailand, which were more severely hit by the crises and are still recovering. Many Asian markets have also increased their use of substitute materials such as softwood and non-wood products.

In contrast to other Asian species, prices for teak logs were practically unaffected during the Asian financial turmoil in 1997 and 1998. Prices for 4th and SG-1 grade teak rose steadily in the last quarter of 1999 to $1,804/m^3 and $1,361/m^3, while SG-2 grade teak fluctuated widely in the same period before rising above $1,000/m^3 to close 1999. Real FOB prices for 4th grade teak were generally increasing through 2000 owing to a strong demand for furniture and other joinery products in European and Japanese markets, reaching $1839/m^3 in late 2000. Further price increases for 4th grade teak have been prevented by the weak economic situation in Japan and the strong United States dollar. Prices for SG-1 grade teak were comparatively more volatile in 2000 than prices for the lower quality SG-2 grade which declined for most of 2000 owing to stronger demand for lower and cheaper grades, such as Assorted Quality. SG-1 and SG-2 grades were being traded at prices of $1252/m^3 and $920/m^3 in late 2000. Despite the mixed price trends for the different teak grades in 2000, demand and prices for all are expected to gradually firm.

12.5.2 Sawnwood

African sawnwood prices were stable or increasing for several important species including mahogany and wawa (obeche) in 1999 and 2000 (graph 12.5.2). After falling to a low of $450/m^3 ($466/m^3 nominal) in mid-1999, real prices for mahogany (one of the most valuable African sawnwood export species) rose during the last half of 1999 and the first half of 2000. Mahogany prices reached a record high of $581/m^3 as the EU furniture sector, especially in the United Kingdom, boosted imports. In the last year, African mahogany prices have surpassed the previous high set in late 1994, but were declining in late 2000.

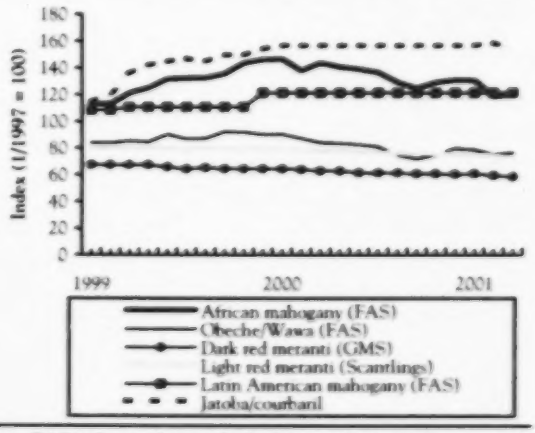
After a period of relative stability, prices of wawa rose slightly in the second half of 1999 to reach $312/m^3 but declined gradually to $262/m^3 in late 2000 as competition from lower-priced Asian sawnwood, temperate hardwoods and softwoods increased.

After rising slightly during the last half of 1999, prices of Malaysian dark red meranti, GMS grade and light red meranti scantlings firmed at $400/m^3 and $528/m^3, respectively, during the first half of 2000 before declining slightly in late 2000.

Latin American mahogany and jatoba sawnwood prices were rising or stable in 1998 and the first half of 1999. Mahogany prices have risen steadily since 1998 as a result of greater demand in the major markets of the United States and Europe and a total ban on logging, processing and trading of this valuable species in Para State of Brazil imposed by IBAMA (the Brazilian

GRAPH 12.5.2

Tropical sawnwood prices, 1999-2001



Note: FAS is first and seconds (highest quality), GMS is general market specification a lower Malaysian grade and scantlings are a lower construction grade.
Source: ITTO, 2001.

environmental agency) in 1998. The reason for the ban was the identification of serious illegal logging in this region. Latin American mahogany prices rose in the first quarter of 2000 from $989/m^3$ to $1083/m^3$, a record high, and remained at this level for most of 2000. Jatoba sawnwood prices also showed a strong upward trend during the last half of 1999 and the first half of 2000, rising by 46% to $631/m^3$ and remained at this level for most of 2000.

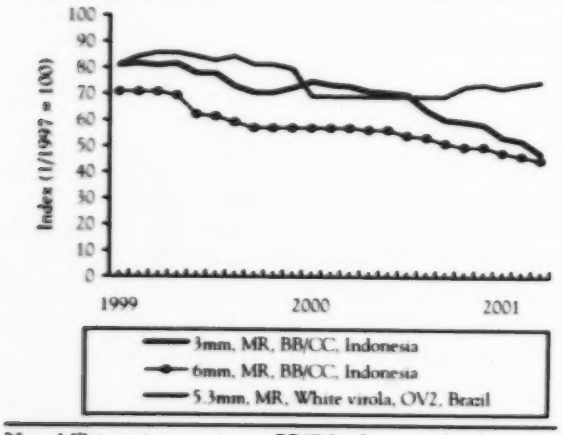
The relatively strong price trend for Latin American sawnwood is due to continued strong demand in North American and European markets as well as the strengthening of Asian currencies and increased sawnwood demand from that region. Prices of Brazilian tropical sawnwood are expected to continue rising as producers are working at the limit of their capacity to cope with an increased demand and as IBAMA extended the mahogany moratorium through August 2002.

12.5.3 Plywood

Prices for plywood have not exhibited the degree of post-crises recovery observed for other tropical timber products (graph 12.5.3). Plywood prices from Indonesia and Malaysia have, in general, declined steadily since 1996. This discussion focuses on Indonesian prices, with which Malaysian prices are closely correlated. By mid-1998, prices of Indonesian BB/CC moisture resistant (MR) plywood had halved to about $235/m^3$, $211/m^3$ and $192/m^3$ for 2.7 mm, 3 mm and over 6 mm thicknesses, respectively. Record lows for these products were due to the impact of the Asian financial turmoil and the weaker yen. Indonesian export prices firmed between late 1998 and most of 1999, owing to a stronger yen and an active demand for thin plywood in China. However, prices then declined in late 1999 and stabilized at around $363/m^3$, $300/m^3$ and $198/m^3$, for the above thicknesses, respectively, in 2000. These real price levels were still 35 to 50% below the highs of 1996. Asian plywood prices have not recovered due to: flat construction sectors in Japan, the Republic of Korea and other Southeast Asian consumers; a recent change of import tariff structures in China, which favours log over plywood imports; increasing substitution by softwood plywood in some consuming countries; and strong competition from other wood-based panels.

GRAPH 12.5.3

Tropical plywood prices, 1999-2001



Note: MR is moisture resistant, BB/CC is lower quality for construction plywood and OV2 is a Brazilian grade.
Source: ITTO, 2001.

Latin American plywood prices have also undergone dramatic declines. This is particularly notable in white virola, the most valuable Brazilian plywood export species, which after being relatively stable between $261 and 280/m^3 between late 1998 and 1999, plummeted to a record low of $217/m^3$ in the first half of 2000, despite volume shortages caused by the closure of some virola plywood mills in the Amazon. Prices of white virola remained stable for the rest of 2000 and may increase in the short term as the volume shortages take effect. Some analysts believe that virola plywood prices could fall further to around the $200/m^3$ mark in 2001 as Brazilian manufacturers attempt to compete with OSB and pine plywood. This could put some mills out of business.

12.6 Secondary processed wood products

Secondary processed wood products (SPWPs) play an increasingly important role in many tropical countries' forest sector, often offsetting declines in traditional primary forest products exports. This analysis of SPWP trade utilizes statistics from the UN Comtrade database, for which 1998 was the most recent year of data availability for many countries at the time of preparation.

The primary categories of tropical SPWPs in trade are wooden furniture (the major category, accounting on average for two-thirds of trade values), builder's woodwork (joinery and other builder's wood), products of domestic/decorative use (table/kitchenware, ornaments, picture frames, etc.), packaging/pallets, coopers' products (casks, barrels, etc.) and other manufactured products (tools, handles, brooms, shoe lasts, etc.). Since furniture and parts of cane and bamboo have become important tropical forest products exports for many ITTO member countries, these products are also included in this analysis.

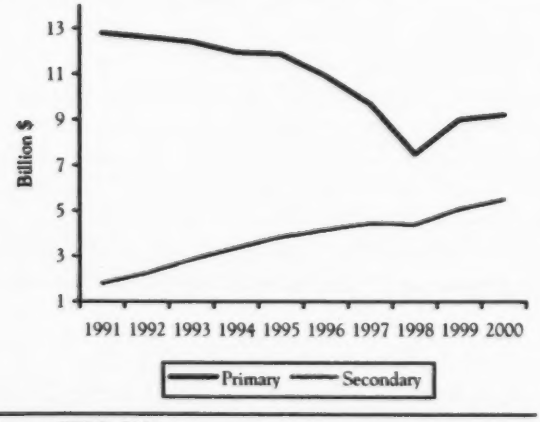
12.6.1 Major importers

All ten of the world's major SPWPs importers are ITTO consumer members. ITTO consumer country imports of SPWPs from ITTO producers ($4.4 billion) were 13% of total imports of these products from all sources in 1998, down from an average 14 to 15% during the 1990s. This value was 59% of the total value of primary tropical timber product imports by ITTO consumers in 1998, up from 14% in 1991. This proportion decreased in 1999 to 56% as imports of primary tropical timber products recovered in several countries and continue to surge in China. The share of SPWPs in total tropical imports continued its upward trend in 2000, rising to an estimated 60% of primary imports (graph 12.6.1). Consumer imports from producer countries grew by about 33% between 1995 and 1999, well above the 24% growth in imports from all sources. ITTO consumer imports of SPWPs from other ITTO consumer countries have been constant at about 72% of their total imports since 1995 and were worth $23.3 billion in 1998.

The top ten ITTO importers accounted for over 83% of ITTO consumer imports of SPWPs from ITTO producers in 1998, a proportion that has been constant through the 1990s. The United States is by far the world's largest single importer of SPWPs and the largest importer from ITTO producer countries. These countries accounted for 18% of its huge $9.3 billion import market for SPWPs in 1998, though this proportion is gradually declining. United States imports come predominantly from other ITTO consumers (71% in 1998). Imports from ITTO consumer countries more than doubled in value from 1995 to 1999, while imports from producer countries rose by 57%.

GRAPH 12.6.1

Imports of primary and secondary tropical timber products by ITTO consumer countries, 1991-2000



Source: ITTO, 2001.

As a group, the EU is the world's largest importer of SPWPs, with its 15 Member States in 1998 importing $16.8 billion worth of these products, led by Germany, France, the United Kingdom, Belgium and Luxembourg, the Netherlands and Austria. Together these 7 countries accounted for over 82% of total EU imports. However, the EU countries import a relatively small proportion (10% in 1998) of their SPWPs from ITTO producer countries. EU imports from ITTO producers were stable at around 9 to 10% of total SPWP imports from 1995 to 1999. Although this is a small market share, its value now exceeds $1.6 billion, comparable to United States imports from ITTO producers and almost three times the value of Japanese SPWP imports from ITTO producers. The market share of the EU SPWP imports held by other ITTO consumers has been declining gradually, from 72% in 1995 to 66% in 1999. In Germany, the largest EU SPWP importer ($5.4 billion in 1998), only 6% of the market has been captured by ITTO producers.

Japan is the largest market in terms of percentage of imports of SPWPs from ITTO producers. ITTO producers captured 31% of Japan's almost $2 billion market for these products in 1998, still by far the largest share in all of the major markets. The market share of ITTO producers went up to 35% of Japan's $2.2 billion SPWP imports in 1999. Transportation costs, tariff levels and regional marketing relationships play a role in the differences in market share held by ITTO producers in the major markets for SPWPs, but there is clearly a substantial opportunity for all producing countries to increase their market share, particularly in the huge European market for these products.

Two thirds of SPWP imports by ITTO consumers and by the EU, the leading import region, are wooden furniture. Cane and rattan furniture (18%) and builder's woodwork (mouldings, dowels, etc., 15%) are far behind as the second and third most valuable types of SPWP imports. France had the greatest proportion of wooden furniture in its SPWP imports at 73% in 1998.

12.6.2 Major exporters

Italy is by far the world's largest exporter of SPWPs. Just over 76% of Italian exports are absorbed by other ITTO consumer countries. Italy's exports comprised about 31% of the $19.5 billion of EU SPWP exports in 1998. The EU accounts for 72% of ITTO consumer exports of SPWPs. Other major exporters include Canada, China, Poland and the United States.

Canada and China experienced a rapid growth in SPWP exports between 1995 and 1999. Canada's exports grew by 150% in the period while China's grew by two thirds. This trend of growth in China, which has been evident since 1990, is expected to continue. Many

companies from Taiwan Province of China and other traditional Asian producers are establishing furniture and other SPWP joint ventures in southern China because of the low wages there. China exported almost $2.2 billion worth of SPWPs in 1998, establishing it as by far the top exporter of these products in the developing world.

Over two thirds of ITTO consumers' SPWP exports consisted of wooden furniture, mostly shipped to other ITTO consumers. Builder's woodwork (17%) and packaging, pallets, casks, barrels and other manufactured products (14%) are far behind as the second and third most valuable types of SPWP exports. Italy's SPWP exports are mostly composed of wooden furniture (86%), at a value of almost $5.2 billion in 1998. Cane and bamboo furniture exports from ITTO consumers (where relatively little cane or bamboo is grown) were almost $790 million in 1998, compared with only $228 million in total exports of these products by all producer countries.

Malaysia, Indonesia, Thailand, Brazil and the Philippines are the major ITTO producer member exporters of SPWPs. Other ITTO producer exporters of SPWPs are smaller and include Honduras, Bolivia and India. The top five ITTO producer exporters accounted for almost 97% of total ITTO producers' SPWP exports of $3.5 billion in 1998. This value fell 14% from 1995 owing to declines in exports from Indonesia (-50%) and Thailand (-9%), largely as a result of the economic turmoil that affected these countries in 1998. ITTO producers' SPWP exports surged 42% in 1999, helped by a recovery in the economy of these two countries and continued SPWP export growth in Malaysia and Brazil.

After a remarkable increase in exports of 271% between 1991 and 1996, Indonesia's development of downstream processing declined sharply in 1997 and halved in 1998. Indonesia was still the largest ITTO producing country exporter of SPWP in 1997, with exports worth over $1.2 billion, but it was overtaken by Malaysia in 1998 with $1.1 billion when Indonesia's exports crashed with its economy to almost $739 million. Indonesia regained its leadership in 1999, when SPWP exports surged by 129% to almost $1.7 billion with Malaysia in second place with $1.3 billion. Indonesia's SPWP exports go mainly to the major markets of the United States, Japan and Europe. To put ITTO producer exports into a global perspective, Italy shipped over $6 billion worth of SPWP to global markets in 1998, about 74% higher than the combined value of all SPWP exports from all ITTO producer countries.

Although developing countries enjoy some degree of tariff relief under the Generalized System of Preferences (GSP) or other schemes for SPWPs in many of the major markets, these benefits have been eroded by general tariff reductions in many countries under the Uruguay Round of trade negotiations. Tariffs in many countries remain high, however, compared with those for primary products like logs and sawnwood. This is one reason why the contribution of developing countries to total imports of such products by ITTO consumers is still below its potential. The EU, Japan and the United States apply no import tariffs on SPWPs from GSP countries, while rates for most other countries range from 2 to 6% on the major product categories. In contrast, many developing countries retain very high tariffs (up to 80%) on these products.

Asia-Pacific is by far the dominant producing region in terms of SPWP exports (84% of all ITTO producers' SPWP exports in 1998), with Latin America (primarily Brazil) a distant second. Value-added processing in the African region has been growing (by 39% from 1995 to 1999), although it is still minimal, owing largely to a lack of capital and infrastructure. Nevertheless, many African Governments such as those of Ghana, Cameroon and Gabon are making the development of secondary processing a priority. Ghana made up 52% of SPWP exports from Africa in 1998. The breakdown between the main tropical regions is unlikely to change significantly, as countries in all three regions continue to express their desire to further expand downstream processing capacity.

Of the ITTO producer countries, Malaysia, Indonesia, Thailand and the Philippines were the largest SPWP producer exporters of wooden furniture, builder's woodwork, packaging, pallets and other manufactured products and cane furniture, respectively, in 1998. The major categories of Malaysia's exports, the largest SPWP producer exporter in 1998, were wooden furniture (75%) and builder's woodwork (15%). Malaysia's SPWP exports go mainly to the major markets of United States, Japan and Singapore. About 70% of Malaysian wooden furniture exports are manufactured from rubberwood.

Thailand has also linked the development of its furniture industry to its rubberwood resources, with all new sawmill licenses now contingent on use of this material. The ban on logging in Thailand's native forests imposed in 1991 has increased its dependence on imports as well as on former rubber plantations for wood supplies. The decline in Thai exports of SPWPs noted above was also affected by wood supply constraints, though exports recovered by 23% in 1999 owing to a boost in the exports of packaging, pallets and other manufactured products. Thailand's wooden furniture, its most valuable SPWP export (worth $430.5 million in 1998), is manufactured largely from rubberwood. Thai SPWP exports go mainly to the markets of United States, Japan and Europe. Both Thailand and Malaysia have been successful in penetrating high-value markets, particularly in Japan, with their rubberwood furniture. Regulations in both

countries favour further processing, restricting exports of raw rubberwood, although the restrictions have been relaxed in Malaysia due to imbalances in domestic supply and demand. Exports of SPWPs from Malaysia and Thailand were not as badly affected by the economic downturn as were Indonesian exports.

In contrast to its export performance from 1990 to 1995, when exports grew almost fourfold, Brazil's exports of SPWPs stabilized at well under $500 million until 1998 but surged by 26% to over $584 million in 1999. The major categories of Brazilian SPWP exports were wooden furniture (56%) and builder's woodwork (29%). Brazil's SPWP exports go mainly to the major markets of the United States and Europe.

Major categories of Africa's SPWP exports were packaging, pallets and other manufactured products (45%), wooden furniture (34%) and builder's woodwork (21%). African SPWP exports are mainly directed to the EU (notably the United Kingdom) and the United States markets.

The development of new processing technologies (e.g. MDF and veneer lamination) and raw material supplies (e.g. rubberwood) are allowing the use of a wider range of tropical wood species in furniture and other SPWPs production in ITTO producer countries and consequent increases in production and exports. The contribution of SPWPs to the forest sectors of ITTO producers and other developing countries will continue to grow rapidly in coming years, with corresponding reductions in production and especially exports of primary tropical timber products.

12.7 References

The following reference texts, periodicals, etc. were consulted in the preparation of the Review:

ATIBT. 1986. *Repertoire General des Bois Tropicaux*. Paris.

ECE/FAO Timber Bulletin. 1999. *Forest Products Prices 1996-1998*. Volume LII (1999), No. 1. Geneva, Switzerland.

ECE/FAO Timber Bulletin. 1999. *Forest Products Statistics 1994-1998*. Volume LII (1999), No. 2. Geneva, Switzerland.

ECE/FAO Timber Bulletin. 1999. *Forest Products Markets in 1999 and Prospects for 2000*. Volume LII (1999), No.6. Geneva, Switzerland.

ECE/FAO Timber Bulletin. 2000. *Forest Products Annual Market Review 1999-2000*. Volume LIII (2000), No.3. Geneva, Switzerland.

EUROSTAT. 2000. *COMEXT database*. Luxembourg.

FAO. 2000. *FAOSTAT Database-1999*. FAO, Rome.

ITTO. 1996. *Pre-Project Study on Evaluation and Enhancement of ITTO's Statistical Functions and Networks*. ITTO, Yokohama, Japan.

ITTO. 2000(a). *ITTC(XXIX)/6 – The ITTO Manual on the Application of Criteria and Indicators for Sustainable Management of Natural Tropical Forests, Draft Report on the Workshops and Field Testing in the Asia Pacific and Latin American Regions. [ITTC Decision 3(XXVI)]*. ITTO, Yokohama.

ITTO 2000(b). *ITTC(XXVIII)/6/Rev.1 – Comparative Study on the Auditing Systems of Sustainable Forest Management [ITTC Decision 9(XXVI)]*. ITTO, Yokohama.

IMF. 2000(a). *World Economic Outlook*. October 2000. Washington, D.C.

IMF. 2000(b). *International Financial Statistics*. Washington D.C.

United Nations Statistics Office. 2000. *UN COMTRADE database*. New York.

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ANNEX TABLE 1

Roundwood apparent consumption
(1,000 m³)

	1997	1998	1999	2000	m³ per 1,000 inhabitants 2000	% change 1999 to 2000
Austria	19,930	18,467	20,125	20,781	2,573.5	3.3
Belgium & Luxembourg	6,048	6,781	...	...	...	...
Belgium	...	...	6,542	7,680	748.2	17.4
Luxembourg	...	...	426	681	1,540.7	59.9
Denmark	2,837	2,054	2,006	2,560	480.0	27.6
Finland	57,929	62,290	63,170	63,733	12,308.4	0.9
France	34,093	34,265	41,742	45,755	769.6	9.6
Germany	35,959	36,454	36,357	52,650	642.0	44.8
Greece	1,921	1,969	2,497	2,448	230.4	-2.0
Iceland	4	4	4	4	13.6	0.0
Ireland	1,996	2,287	2,730	2,696	701.9	-1.2
Italy	13,878	14,990	16,443	15,600	271.3	-5.1
Liechtenstein	13	13	8	8	227.3	0.0
Netherlands	1,251	1,221	1,239	1,095	68.7	-11.6
Norway	10,948	11,198	10,926	11,007	2,452.5	0.7
Portugal	10,012	10,087	9,854	9,854	982.1	0.0
Spain	17,235	18,440	17,666	21,919	549.1	24.1
Sweden	66,541	68,446	67,793	72,242	8,178.6	6.6
Switzerland	3,400	3,558	3,874	6,943	968.3	79.2
United Kingdom	7,999	7,372	7,510	7,398	124.2	-1.5
EU/EFTA	291,994	299,895	310,911	345,053	863.4	11.0
Albania	23	28	31	31	10.0	0.0
Bulgaria	2,787	2,975	4,176	4,525	575.1	8.4
Croatia	2,925	3,231	3,265	3,265	701.3	0.0
Cyprus	55	35	36	25	31.8	-31.0
Czech Republic	11,169	12,114	12,222	13,366	1,302.7	9.4
Estonia	2,574	2,484	3,068	4,825	3,503.7	57.3
Hungary	3,687	3,069	4,804	4,662	470.1	-3.0
Israel	309	309	329	329	53.3	0.0
Latvia	5,822	5,860	10,402	10,271	4,268.8	-1.3
Lithuania	4,485	4,176	4,062	4,204	1,139.5	3.5
Malta	1	1	1	4	11.1	264.7
Poland	21,634	23,116	24,468	26,035	674.9	6.4
Romania	13,542	11,490	12,102	12,634	564.3	4.4
Slovakia	5,149	4,933	4,163	3,580	662.6	-14.0
Slovenia	2,240	2,102	2,233	2,445	1,231.8	9.5
The fYR of Macedonia	779	697	820	1,447	708.0	76.5
Turkey	19,079	18,921	19,040	19,646	290.5	3.2
Yugoslavia	81	81	81	81	7.7	0.0
OTHER EUROPE	96,339	95,622	105,305	111,374	547.4	5.8
Belarus	6,874	5,081	5,877	5,296	521.9	-9.9
Republic of Moldova	436	403	78	89	20.7	13.3
Russian Federation	95,380	74,281	115,473	126,893	877.2	9.9
Canada	194,655	181,564	190,356	191,003	6,158.4	0.3
United States	475,694	482,709	487,350	489,999	1,713.7	0.5
NORTH AMERICA	670,349	664,272	677,706	681,002	2,148.7	0.5

Source: UNECE/FAO TIMBER database, 2001.

ANNEX TABLE 2

Sawn softwood apparent consumption
(1,000 m³)

	1997	1998	1999	2000	m³ per 1,000 inhabitants 2000	% change 1999 to 2000
Austria	4,320	4,623	5,034	5,468	677.2	8.6
Belgium & Luxembourg	1,875	2,069	...	...	...	...
Belgium	...	...	1,743	1,785	173.9	2.4
Luxembourg	...	...	129	133	300.9	3.1
Denmark	2,068	4,010	4,752	4,697	880.7	-1.2
Finland	4,027	4,187	4,660	5,178	1,000.0	11.1
France	8,291	8,922	9,174	10,656	179.2	16.2
Germany	17,067	16,885	17,571	17,137	209.0	-2.5
Greece	454	465	662	648	61.0	-2.1
Iceland	66	66	66	66	235.6	0.0
Ireland	709	978	1,006	1,145	298.1	13.8
Italy	5,896	5,925	6,230	7,013	122.0	12.6
Netherlands	2,858	2,854	2,832	2,559	160.6	-9.6
Norway	2,758	2,752	2,356	2,689	599.2	14.1
Portugal	879	748	806	806	80.3	0.0
Spain	3,576	7,150	4,038	4,294	107.6	6.3
Sweden	4,623	4,033	3,686	3,839	434.6	4.2
Switzerland	1,354	1,501	1,551	1,659	231.4	7.0
United Kingdom	8,624	8,621	8,885	9,512	159.8	7.1
EU/EFTA	69,445	75,789	75,181	79,284	198.4	5.5
Albania	8	15	21	21	6.7	0.0
Bulgaria	176	176	128	143	18.2	11.7
Croatia	139	218	225	225	48.2	0.0
Cyprus	85	82	82	78	99.3	-3.8
Czech Republic	1,841	2,027	1,940	2,300	224.2	18.6
Estonia	111	175	411	321	233.5	-21.9
Hungary	761	724	789	1,024	103.3	29.8
Israel	368	368	383	383	62.0	0.0
Latvia	511	579	718	942	391.6	31.2
Lithuania	386	588	570	642	173.9	12.5
Malta	14	14	14	14	35.7	0.0
Poland	2,826	2,973	2,801	2,784	72.2	-0.6
Romania	200	247	352	401	17.9	14.1
Slovakia	231	133	-122	-387	-71.6	...
Slovenia	130	327	174	166	83.7	-4.3
The fYR of Macedonia	51	60	78	74	36.2	-5.3
Turkey	2,129	2,283	2,470	2,762	40.8	11.8
OTHER EUROPE	9,966	10,988	11,033	11,894	58.5	7.8
Belarus	858	1,305	1,186	1,050	103.5	-11.4
Republic of Moldova	82	82	57	57	13.3	0.0
Russian Federation	12,224	10,984	10,514	10,303	71.2	-2.0
Canada	16,904	17,523	20,592	20,398	657.7	-0.9
United States	120,442	122,656	128,022	126,377	442.0	-1.3
NORTH AMERICA	137,346	140,179	148,614	146,775	463.1	-1.2

Source: UNECE/FAO TIMBER database, 2001.

ANNEX TABLE 3

Sawn hardwood apparent consumption
(1,000 m³)

	1997	1998	1999	2000	m³ per 1,000 inhabitants 2000	% change 1999 to 2000
Austria	273	292	322	335	41.5	4.0
Belgium & Luxembourg	855	778	...	...	...	...
Belgium	...	...	481	559	54.5	16.2
Luxembourg	...	...	29	40	90.5	37.9
Denmark	56	259	161	156	29.3	-3.1
Finland	110	106	105	112	21.6	6.7
France	2,832	3,072	2,980	3,585	60.3	20.3
Germany	1,535	1,494	1,874	1,793	21.9	-4.3
Greece	63	72	261	256	24.1	-1.9
Iceland	4	3	3	3	9.4	0.0
Ireland	113	159	141	151	39.3	7.1
Italy	2,620	2,796	2,793	2,749	47.8	-1.6
Netherlands	596	621	701	976	61.3	39.3
Norway	86	52	56	40	8.9	-28.6
Portugal	635	544	559	559	55.7	0.0
Spain	1,555	1,968	1,902	2,024	50.7	6.4
Sweden	337	352	368	362	41.0	-1.6
Switzerland	191	253	250	227	31.7	-9.2
United Kingdom	741	596	613	748	12.6	22.0
EU/EFTA	12,602	13,417	13,599	14,675	36.7	7.9
Albania	2	19	20	20	6.2	0.0
Bulgaria	44	44	-70	-77	-9.8	...
Croatia	105	122	136	136	29.2	0.0
Cyprus	18	19	17	17	21.8	0.6
Czech Republic	337	357	360	364	35.5	1.1
Estonia	41	21	26	8	6.0	-68.9
Hungary	70	-19	68	90	9.0	31.6
Israel	22	21	102	102	16.6	0.0
Latvia	18	88	228	146	60.7	-36.0
Lithuania	20	103	116	115	31.1	-0.8
Malta	8	8	8	8	20.4	0.0
Poland	583	578	613	635	16.4	3.5
Romania	423	413	554	679	30.3	22.7
Slovakia	77	291	-142	-105	-19.4	...
Slovenia	124	113	128	142	71.8	11.7
The fYR of Macedonia	5	8	15	-60	-29.5	-497.7
Turkey	1,844	1,958	2,101	2,190	32.4	4.2
OTHER EUROPE	3,740	4,144	4,280	4,410	21.7	3.0
Belarus	601	740	365	746	73.5	104.5
Republic of Moldova	57	58	59	58	13.6	-0.7
Russian Federation	3,725	3,747	2,169	2,220	15.3	2.4
Canada	859	802	796	773	24.9	-2.9
United States	28,114	31,616	32,453	33,248	116.3	2.4
NORTH AMERICA	28,973	32,418	33,249	34,021	107.3	2.3

Source: UNECE/FAO TIMBER database, 2001.

ANNEX TABLE 4

Particle board apparent consumption
(1,000 m³)

	1997	1998	1999	2000	m³ per 1,000 inhabitants 2000	% change 1999 to 2000
Austria	665	684	816	648	80.2	-20.6
Belgium & Luxembourg	851	734	...	...	...	...
Belgium	...	...	1,018	1,049	102.2	3.0
Luxembourg	...	...	29	29	65.6	0.0
Denmark	655	706	701	949	177.9	35.4
Finland	314	300	295	306	59.1	3.7
France	2,736	2,954	3,004	3,131	52.7	4.2
Germany	9,238	9,500	9,417	9,615	117.2	2.1
Greece	292	329	401	404	38.0	0.5
Iceland	15	15	15	15	53.4	0.0
Ireland	157	164	240	181	47.1	-24.6
Italy	3,236	3,390	3,340	3,423	59.5	2.5
Netherlands	649	643	668	668	41.9	0.0
Norway	256	268	273	287	64.0	5.1
Portugal	299	408	454	475	47.3	4.7
Spain	2,001	2,361	2,964	3,578	89.6	20.7
Sweden	724	599	615	717	81.2	16.6
Switzerland	347	396	386	271	37.8	-29.8
United Kingdom	3,096	3,235	3,264	3,534	59.4	8.3
EU/EFTA	25,532	26,684	27,900	29,279	73.3	4.9
Bulgaria	119	119	35	60	7.6	71.4
Croatia	77	79	89	89	19.1	0.0
Cyprus	41	40	40	31	38.7	-23.7
Czech Republic	447	327	478	542	52.8	13.4
Estonia	93	96	102	49	35.9	-51.3
Hungary	341	377	401	439	44.3	9.6
Israel	124	124	138	138	22.3	0.0
Latvia	44	42	34	46	19.3	36.4
Lithuania	75	108	81	80	21.8	-0.7
Malta	9	8	7	7	17.2	0.0
Poland	2,460	2,615	2,263	2,648	68.6	17.0
Romania	299	264	295	298	13.3	0.8
Slovakia	257	262	303	237	43.9	-21.8
Slovenia	213	219	239	232	117.1	-2.6
The fYR of Macedonia	161	166	171	174	85.0	1.4
Turkey	1,722	1,517	1,627	1,837	27.2	12.9
Yugoslavia	105	105	104	104	9.9	0.0
OTHER EUROPE	6,587	6,469	6,405	7,011	34.5	9.5
Belarus	-34	342	251	196	19.4	-21.8
Republic of Moldova	31	31	31	31	7.3	0.0
Russian Federation	2,302	1,709	2,057	2,447	16.9	19.0
Canada	2,151	1,873	2,941	2,471	79.7	-16.0
United States	21,858	24,631	28,300	29,416	102.9	3.9
NORTH AMERICA	24,009	26,504	31,241	31,887	100.6	2.1

Source: UNECE/FAO TIMBER database, 2001.

ANNEX TABLE 5

Plywood apparent consumption
(1,000 m³)

	1997	1998	1999	2000	m³ per 1,000 inhabitants 2000	% change 1999 to 2000
Austria	88	91	99	74	9.2	-25.0
Belgium & Luxembourg	643	227	...	...	...	...
Belgium	...	...	186	200	19.5	7.6
Denmark	169	278	168	410	76.9	144.0
Finland	212	186	160	103	19.9	-35.6
France	691	678	668	683	11.5	2.3
Germany	1,391	1,367	1,225	1,225	14.9	0.0
Greece	27	29	31	31	2.9	0.0
Iceland	2	1	1	1	3.7	0.0
Ireland	80	84	140	122	31.8	-12.9
Italy	601	659	678	726	12.6	7.1
Netherlands	334	477	510	510	32.0	0.0
Norway	77	69	72	74	16.5	2.8
Portugal	29	35	41	51	5.1	26.2
Spain	169	352	467	484	12.1	3.7
Sweden	154	170	192	222	25.1	15.6
Switzerland	137	140	146	146	20.4	0.0
United Kingdom	962	956	950	1,012	17.0	6.5
EU/EFTA	5,765	5,799	5,733	6,075	15.2	6.0
Bulgaria	22	22	23	32	4.1	39.1
Croatia	8	8	9	9	1.9	0.0
Cyprus	7	7	7	9	10.8	16.3
Czech Republic	48	46	44	47	4.6	6.8
Estonia	0	10	29	38	27.6	31.4
Hungary	67	49	30	31	3.1	2.0
Israel	117	117	160	160	26.0	0.0
Latvia	-121	14	28	35	14.5	26.1
Lithuania	32	26	18	21	5.6	14.7
Malta	5	5	4	4	8.9	0.0
Poland	197	149	199	184	4.8	-7.4
Romania	35	32	32	27	1.2	-16.6
Slovakia	82	77	-93	99	18.3	...
Slovenia	22	30	51	35	17.4	-31.8
The fYR of Macedonia	0	2	2	6	3.0	160.0
Turkey	74	63	44	74	1.1	68.2
OTHER EUROPE	596	656	587	809	4.0	37.9
Belarus	56	61	47	23	2.3	-51.5
Republic of Moldova	1	1	1	1	0.1	0.0
Russian Federation	369	395	414	518	3.6	25.2
Canada	1,527	1,268	1,194	1,208	38.9	1.1
United States	18,162	18,599	19,333	18,991	66.4	-1.8
NORTH AMERICA	19,689	19,867	20,527	20,199	63.7	-1.6

Source: UNECE/FAO TIMBER database, 2001.

ANNEX TABLE 6

Fibreboard apparent consumption
(1,000 m^3)

	1997	1998	1999	2000	m^3 per 1,000 inhabitants 2000	% change 1999 to 2000
Austria	109	80	111	111	13.7	0.0
Belgium & Luxembourg	387	321	...	...	...	...
Belgium	...	...	317	317	30.9	0.0
Denmark	243	149	236	267	50.1	13.1
Finland	135	158	176	188	36.3	6.8
France	314	640	654	934	15.7	42.8
Germany	1,686	1,643	1,987	2,455	29.9	23.6
Greece	323	334	341	335	31.5	-1.8
Iceland	3	4	5	5	18.4	0.0
Ireland	204	100	127	163	42.4	28.3
Italy	424	1,304	1,181	1,203	20.9	1.9
Netherlands	358	425	427	427	26.8	0.0
Norway	128	134	57	67	14.9	17.5
Portugal	32	160	242	242	24.1	0.0
Spain	643	1,146	1,082	1,087	27.2	0.5
Sweden	170	200	251	281	31.8	12.0
Switzerland	201	175	304	304	42.4	0.0
United Kingdom	1,114	1,288	1,232	1,463	24.6	18.8
EU/EFTA	6,474	8,261	8,729	9,848	24.6	12.8
Bulgaria	55	55	19	-3	-0.4	-115.8
Croatia	-9	10	13	13	2.9	0.0
Cyprus	21	21	17	17	21.6	0.0
Czech Republic	74	92	96	135	13.2	40.6
Estonia	-113	42	41	58	41.9	39.3
Hungary	38	24	31	36	3.7	17.9
Israel	161	141	162	144	23.4	-11.1
Latvia	8	11	17	13	5.6	-20.7
Lithuania	25	35	30	49	13.2	59.5
Malta	15	14	15	15	38.0	0.0
Poland	627	829	871	946	24.5	8.6
Romania	46	43	60	33	1.5	-45.0
Slovakia	51	183	79	-22	-4.1	-127.8
Slovenia	72	88	82	81	40.8	-0.7
The fYR of Macedonia	3	3	5	-3	-1.5	-164.9
Turkey	616	430	379	677	10.0	78.6
Yugoslavia	32	32	35	35	3.3	0.0
OTHER EUROPE	1,722	2,053	1,953	2,224	10.9	13.9
Belarus	...	-16	68	44	4.4	-35.3
Republic of Moldova	...	...	1	1	0.3	0.0
Russian Federation	639	499	560	650	4.5	16.1
Canada	523	574	553	555	17.9	0.4
United States	6,529	7,584	7,886	9,067	31.7	15.0
NORTH AMERICA	7,051	8,158	8,439	9,622	30.4	14.0

Source: UNECE/FAO TIMBER database, 2001.

ANNEX TABLE 7

Chemical woodpulp apparent consumption

(1,000 m.t.)

	1997	1998	1999	2000	m^3 per 1,000 inhabitants 2000	% change 1999 to 2000
Austria	1,348	1,420	1,336	1,455	180.2	8.9
Belgium & Luxembourg	544	560	...	...	...	...
Belgium	...	...	518	650	63.3	25.5
Denmark	53	47	53	44	8.3	-17.0
Finland	4,996	5,215	5,261	5,592	1,080.0	6.3
France	3,466	3,398	3,430	3,593	60.4	4.8
Germany	4,053	3,994	3,660	3,855	47.0	5.3
Greece	121	126	129	126	11.9	-2.3
Ireland	11	17	20	17	4.4	-15.0
Italy	2,885	3,020	3,083	2,958	51.4	-4.1
Netherlands	725	832	629	526	33.0	-16.4
Norway	646	538	539	537	119.7	-0.4
Portugal	728	730	700	719	71.7	2.7
Spain	1,250	1,519	1,518	1,707	42.8	12.5
Sweden	4,994	4,979	5,028	5,546	627.9	10.3
Switzerland	444	430	451	447	62.3	-0.9
United Kingdom	1,633	1,529	1,560	1,689	28.4	8.3
EU/EFTA	27,896	28,355	27,915	29,461	73.7	5.5
Bulgaria	42	42	30	31	4.0	3.3
Croatia	9	4	4	4	0.8	0.0
Cyprus	3	3	3	3	3.3	0.0
Czech Republic	330	367	368	391	38.1	6.2
Estonia	38	42	50	55	39.8	9.8
Hungary	144	170	175	164	16.6	-6.4
Israel	107	107	110	110	17.9	0.0
Latvia	1	0	0	0	0.0	...
Lithuania	4	3	1	2	0.4	7.9
Malta	1	0	0	0	0.9	0.0
Poland	783	845	885	954	24.7	7.8
Romania	176	157	135	180	8.0	32.9
Slovakia	44	229	209	315	58.4	51.0
Slovenia	189	205	199	230	115.9	15.6
The fYR of Macedonia	0	3	2	3	1.4	60.4
Turkey	483	510	513	527	7.8	2.7
Yugoslavia	21	21	32	32	3.0	0.0
OTHER EUROPE	2,375	2,709	2,717	3,000	14.7	10.4
Belarus	32	71	86	77	7.6	-10.6
Republic of Moldova	...	...	-1	-1	-0.1	...
Russian Federation	1,580	1,718	2,282	2,628	18.2	15.2
Canada	4,105	4,079	3,992	3,949	127.3	-1.1
United States	50,076	49,952	49,500	49,690	173.8	0.4
NORTH AMERICA	54,181	54,031	53,492	53,639	169.2	0.3

Source: UNECE/FAO TIMBER database, 2001.

ANNEX TABLE 8

Paper and paperboard apparent consumption

(1,000 m.t.)

	1997	1998	1999	2000	m³ per 1,000 inhabitants 2000	% change 1999 to 2000
Austria	2,052	1,985	1,868	2,395	296.6	28.2
Belgium & Luxembourg	2,524	2,940	...	...	...	...
Belgium	...	...	2,728	2,763	269.2	1.3
Luxembourg	...	...	63	30	67.9	-52.4
Denmark	1,305	1,311	1,328	1,424	267.0	7.2
Finland	2,423	2,027	2,043	2,224	429.5	8.9
France	10,418	10,743	10,955	11,359	191.1	3.7
Germany	16,454	17,073	17,766	19,112	233.1	7.6
Greece	1,004	1,078	1,084	1,024	96.4	-5.5
Iceland	32	32	6	6	22.4	0.0
Ireland	389	446	429	420	109.3	-2.1
Italy	9,487	9,592	10,461	11,020	191.6	5.3
Netherlands	3,429	3,894	4,164	3,650	229.1	-12.3
Norway	795	736	731	820	182.7	12.2
Portugal	1,128	1,057	1,052	1,179	117.5	12.1
Spain	5,634	5,462	8,047	6,677	167.3	-17.0
Sweden	2,285	1,888	1,867	2,473	280.0	32.5
Switzerland	1,407	1,590	1,467	1,581	220.5	7.8
United Kingdom	11,258	11,413	11,871	11,233	188.7	-5.4
EU/EFTA	72,023	73,267	77,930	79,390	198.6	1.9
Albania	49	50	46	46	14.6	0.0
Bulgaria	201	201	196	211	26.8	7.7
Croatia	467	478	488	488	104.9	0.0
Cyprus	51	51	34	34	43.5	0.0
Czech Republic	761	782	803	854	83.2	6.4
Estonia	57	49	52	65	47.2	23.8
Hungary	675	659	659	779	78.5	18.2
Israel	600	609	637	637	103.2	0.0
Latvia	105	85	43	95	39.4	120.0
Lithuania	102	89	83	94	25.4	12.6
Malta	24	34	27	27	69.1	0.0
Poland	2,000	2,088	2,268	2,420	62.7	6.7
Romania	364	346	319	372	16.6	16.4
Slovakia	514	489	478	562	104.1	17.6
Slovenia	70	309	212	171	86.1	-19.3
The fYR of Macedonia	44	41	45	49	23.9	8.7
Turkey	2,030	2,075	2,142	2,755	40.7	28.6
Yugoslavia	161	161	242	242	22.9	0.0
OTHER EUROPE	8,275	8,595	8,776	9,900	48.7	12.8
Belarus	...	227	259	282	27.8	9.2
Republic of Moldova	...	...	15	15	3.6	0.0
Russian Federation	2,122	2,128	2,848	3,382	23.4	18.8
Canada	5,191	6,721	8,220	7,948	256.3	-3.3
United States	90,528	91,866	95,870	93,693	327.7	-2.3
NORTH AMERICA	95,719	98,588	104,090	101,641	320.7	-2.4

Source: UNECE/FAO TIMBER database, 2001.

ANNEX TABLE 9

Graphic papers apparent consumption

(1,000 m.t.)

	1997	1998	1999	2000	m^3 per 1,000 inhabitants 2000	% change 1999 to 2000
Austria	902	767	857	922	114.2	7.6
Belgium & Luxembourg	1,063	1,386	...	...	...	...
Belgium	...	...	1,408	1,386	135.0	-1.6
Luxembourg	...	...	56	48	108.6	-14.3
Denmark	677	686	662	702	131.6	6.0
Finland	1,206	1,259	1,276	1,406	271.5	10.2
France	4,947	5,211	5,413	5,576	93.8	3.0
Germany	8,535	8,721	8,945	9,643	117.6	7.8
Greece	248	295	368	361	34.0	-1.9
Iceland	16	15	6	6	22.4	0.0
Ireland	191	201	215	167	43.5	-22.3
Italy	3,629	3,539	4,029	4,314	75.0	7.1
Netherlands	1,675	1,858	1,742	1,607	100.9	-7.7
Norway	398	462	454	544	121.2	19.8
Portugal	440	449	465	593	59.1	27.5
Spain	2,120	2,299	2,339	2,462	61.7	5.3
Sweden	993	694	790	1,127	127.6	42.7
Switzerland	808	931	927	993	138.5	7.1
United Kingdom	6,208	6,497	6,788	6,472	108.7	-4.7
EU/EFTA	34,055	35,271	36,741	38,330	95.9	4.3
Albania	15	14	...	...	...	...
Bulgaria	40	40	62	72	9.2	16.1
Croatia	53	61	69	69	14.8	0.0
Cyprus	23	23	5	5	6.2	0.0
Czech Republic	354	348	341	360	35.1	5.6
Estonia	31	25	29	36	25.9	22.8
Hungary	349	337	328	406	40.9	23.8
Israel	260	261	259	259	42.0	0.0
Latvia	56	44	15	43	18.1	195.5
Lithuania	33	37	40	42	11.5	5.3
Malta	13	13	4	4	10.7	0.0
Poland	854	929	1,047	1,155	29.9	10.3
Romania	134	128	87	149	6.6	71.2
Slovakia	229	240	261	300	55.5	14.9
Slovenia	160	125	89	65	32.7	-27.0
The FYR of Macedonia	19	17	16	19	9.3	17.1
Turkey	743	732	806	1,206	17.8	49.6
OTHER EUROPE	3,046	3,375	3,458	4,190	20.6	21.2
Belarus	...	...	41	49	4.8	18.8
Republic of Moldova	...	...	3	3	0.6	0.0
Russian Federation	578	651	910	1,092	7.5	20.0
Canada	1,549	3,099	4,321	3,949	127.3	-8.6
United States	38,127	38,876	40,080	40,385	141.2	0.8
NORTH AMERICA	39,676	41,975	44,401	44,334	139.9	-0.2

Source: UNECE/FAO TIMBER database, 2001.

ANNEX TABLE 10

Sanitary and household papers apparent consumption

(1,000 m.t.)

	1997	1998	1999	2000	m^3 per 1,000 inhabitants 2000	% change 1999 to 2000
Austria	109	113	109	113	14.0	3.7
Belgium & Luxembourg	96	96	...	...	...	...
Belgium	...	...	100	98	9.5	-2.0
Luxembourg	...	...	-19	-18	-40.7	...
Denmark	2	2	3	4	0.8	33.3
Finland	151	109	124	123	23.8	-0.8
France	543	533	593	631	10.6	6.4
Germany	909	936	979	1,058	12.9	8.1
Greece	127	126	126	139	13.1	10.3
Ireland	...	4	-2	-4	-1.0	...
Italy	766	813	1,103	1,074	18.7	-2.6
Netherlands	180	175	185	143	9.0	-22.7
Norway	45	14	13	15	3.3	15.4
Portugal	59	64	64	66	6.6	3.1
Spain	356	416	435	451	11.3	3.7
Sweden	233	236	208	223	25.2	7.2
Switzerland	128	108	82	92	12.8	12.2
United Kingdom	801	835	863	832	14.0	-3.6
EU/EFTA	4,505	4,580	4,966	5,040	12.6	1.5
Bulgaria	...	...	21	22	2.8	4.8
Croatia	206	211	207	207	44.6	0.0
Czech Republic	57	32	37	43	4.2	16.2
Estonia	...	0	0	0	0.2	433.3
Hungary	46	47	48	48	4.8	0.4
Israel	...	...	48	48	7.7	0.0
Latvia	...	1	0	0	0.2	120.0
Lithuania	7	11	8	8	2.1	3.2
Poland	119	113	120	125	3.2	4.7
Romania	35	39	35	37	1.7	7.5
Slovakia	56	73	47	98	18.1	108.7
Slovenia	55	50	56	59	29.7	5.4
The fYR of Macedonia	...	...	3	3	1.6	8.7
Turkey	58	73	84	97	1.4	15.5
OTHER EUROPE	639	649	712	796	3.9	11.7
Belarus	...	...	4	1	0.1	-67.4
Russian Federation	187	101	107	116	0.8	8.4
Canada	535	547	574	604	19.5	5.2
United States	5,916	6,044	6,330	6,301	22.0	-0.5
NORTH AMERICA	6,451	6,591	6,904	6,905	21.8	0.0

Source: UNECE/FAO TIMBER database, 2001.

ANNEX TABLE 11

Packaging materials apparent consumption
(1,000 m.t.)

	1997	1998	1999	2000	m^3 per 1,000 inhabitants 2000	% change 1999 to 2000
Austria	930	991	784	1,227	152.0	56.5
Belgium & Luxembourg	1,268	1,277	...	...	...	...
Belgium	...	...	1,115	1,174	114.4	5.3
Luxembourg	...	...	18	11	24.9	-38.9
Denmark	562	549	575	661	123.9	15.0
Finland	620	567	514	559	108.0	8.8
France	4,692	4,828	4,778	4,997	84.0	4.6
Germany	5,937	6,341	6,722	7,239	88.3	7.7
Greece	585	610	581	514	48.4	-11.5
Ireland	193	217	192	232	60.4	20.8
Italy	4,747	4,865	3,980	4,236	73.7	6.4
Netherlands	1,588	1,808	2,211	1,884	118.3	-14.8
Norway	283	286	289	291	64.8	0.7
Portugal	544	515	485	482	48.1	-0.6
Spain	2,835	2,348	4,833	3,306	82.8	-31.6
Sweden	910	830	752	988	111.9	31.4
Switzerland	446	516	353	382	53.3	8.2
United Kingdom	3,761	3,672	3,582	3,477	58.4	-2.9
EU/EFTA	29,901	30,220	31,764	31,660	79.2	-0.3
Bulgaria	...	...	99	104	13.2	5.1
Croatia	142	135	138	138	29.6	0.0
Cyprus	...	22	23	23	29.7	0.0
Czech Republic	351	378	405	407	39.7	0.5
Estonia	24	22	18	26	18.9	41.6
Hungary	238	250	257	293	29.5	13.7
Israel	263	270	304	304	49.3	0.0
Latvia	33	30	26	47	19.4	77.8
Lithuania	48	41	33	41	11.0	23.1
Poland	938	891	874	902	23.4	3.1
Romania	180	171	171	174	7.8	1.6
Slovakia	171	127	131	157	29.0	19.8
Slovenia	164	122	51	35	17.6	-31.4
The fYR of Macedonia	17	21	29	25	12.4	-12.4
Turkey	1,217	1,211	1,196	1,390	20.6	16.2
OTHER EUROPE	3,787	3,690	3,757	4,065	20.0	8.2
Belarus	...	...	125	130	12.8	4.4
Republic of Moldova	...	...	6	6	1.3	0.0
Russian Federation	780	964	1,294	1,450	10.0	12.1
Canada	3,089	3,284	3,457	3,519	113.5	1.8
United States	44,213	44,467	46,877	44,451	155.5	-5.2
NORTH AMERICA	47,302	47,751	50,334	47,970	151.4	-4.7

Source: UNECE/FAO TIMBER database, 2001.

ANNEX TABLE 12

Other paper and paperboard apparent consumption

(1,000 m.t.)

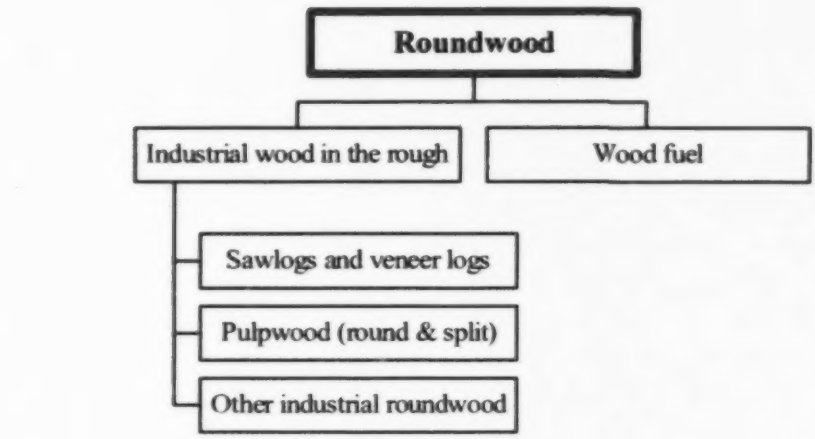
	1997	1998	1999	2000	m^3 per 1,000 inhabitants 2000	% change 1999 to 2000
Austria	111	115	118	133	16.5	12.7
Belgium & Luxembourg	97	181	...	...	...	...
Belgium	...	...	105	105	10.2	0.0
Luxembourg	...	...	8	-11	-24.9	-237.5
Denmark	64	74	88	57	10.7	-35.2
Finland	446	92	129	136	26.3	5.4
France	236	171	171	155	2.6	-9.4
Germany	1,073	1,075	1,120	1,172	14.3	4.6
Greece	44	46	9	10	0.9	11.1
Ireland	...	24	24	25	6.5	4.2
Italy	345	376	1,349	1,396	24.3	3.5
Netherlands	-15	52	26	16	1.0	-38.5
Norway	69	-26	-25	-30	-6.7	...
Portugal	85	30	37	37	3.7	0.0
Spain	323	398	440	458	11.5	4.1
Sweden	149	128	117	135	15.3	15.4
Switzerland	25	35	105	114	15.9	8.6
United Kingdom	489	409	638	452	7.6	-29.2
EU/EFTA	3,541	3,179	4,459	4,360	10.9	-2.2
Albania	34	36	38	38	12.0	0.0
Bulgaria	...	...	14	13	1.7	-7.1
Croatia	65	71	74	74	15.9	0.0
Czech Republic	-1	24	20	44	4.3	120.0
Estonia	...	2	5	3	2.2	-40.1
Hungary	43	26	26	32	3.2	24.3
Latvia	14	10	2	4	1.8	118.0
Lithuania	14	0	3	3	0.8	18.3
Poland	88	156	227	238	6.2	4.8
Romania	15	7	27	12	0.5	-55.6
Slovakia	58	49	39	8	1.4	-80.2
Slovenia	11	12	16	12	6.0	-25.0
The fYR of Macedonia	8	0	-3	1	0.6	...
Turkey	12	59	56	62	0.9	10.7
Yugoslavia	58	58	85	85	8.1	0.0
OTHER EUROPE	419	509	629	630	3.1	0.2
Belarus	...	...	89	102	10.0	15.1
Republic of Moldova	...	...	7	7	1.6	0.0
Russian Federation	577	412	537	724	5.0	34.8
Canada	18	-208	-132	-124	-4.0	...
United States	2,272	2,479	2,583	2,556	8.9	-1.0
NORTH AMERICA	2,290	2,271	2,451	2,432	7.7	-0.8

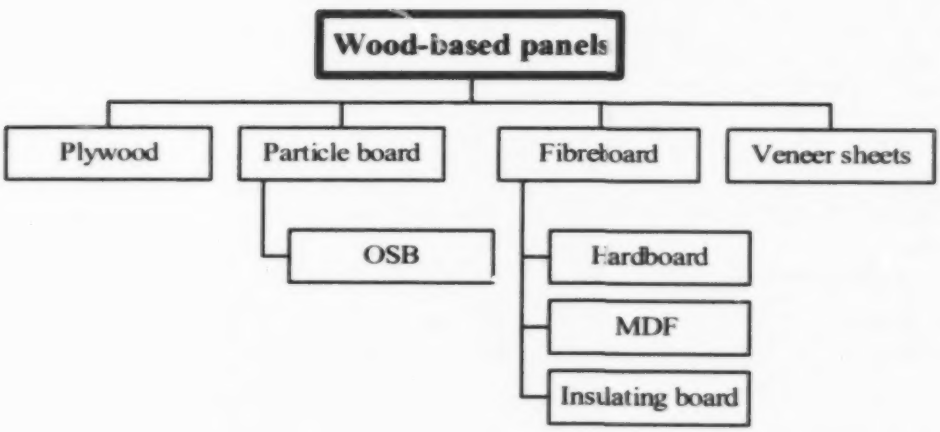
Source: UNECE/FAO TIMBER database, 2001.

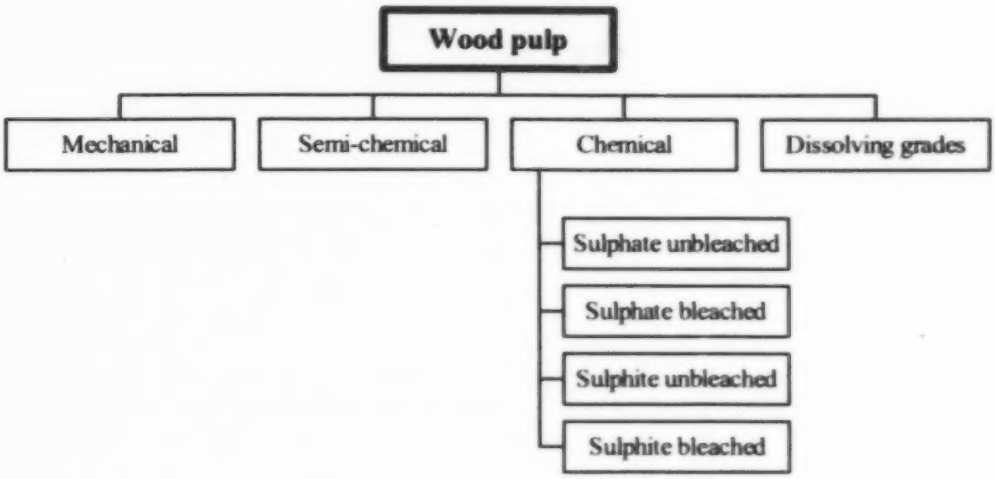
Components of wood products groups

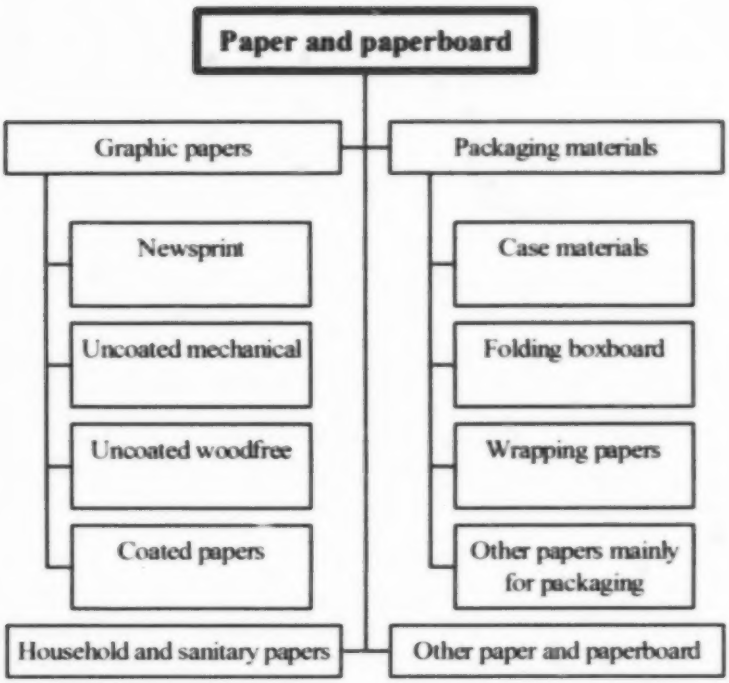
(Based on Joint Forest Sector Questionnaire nomenclature, 2001)

The important breakdowns of the major groups of primary forest products are diagrammed below. In addition, many sub-items are further divided into softwood or hardwood, specifically: roundwood products, plywood, veneer sheets and sawnwood. Items that do not fit into listed aggregates are not shown, specifically: sawnwood, chips and particles, other pulp, recovered paper, wood charcoal and wood residues.






Wood pulp
Mechanical
Semi-chemical
Chemical
Dissolving grades
Sulphate unbleached
Sulphate bleached
Sulphite unbleached
Sulphite bleached


Paper and paperboard
Graphic papers
Packaging materials
Newsprint
Uncoated mechanical
Uncoated woodfree
Coated papers
Case materials
Folding boxboard
Wrapping papers
Other papers mainly for packaging
Household and sanitary papers
Other paper and paperboard

Forest products terminology[1]

General terms

Coniferous (softwood)

All woods derived from trees classified botanically as Gymnospermae, e.g. *Abies* spp., *Araucaria* spp., *Cedrus* spp., *Chamaecyparis* spp., *Cupressus* spp., *Larix* spp., *Picea* spp., *Pinus* spp., *Thuja* spp., *Tsuga* spp., etc. These are generally referred to as softwoods.

Non-coniferous (hardwood)

All woods derived from trees classified botanically as Angiospermae, e.g. *Acer* spp., *Dipterocarpus* spp., *Entandrophragma* spp., *Eucalyptus* spp., *Fagus* spp., *Populus* spp., *Quercus* spp., *Shorea* spp., *Swietonia* spp., *Tectona* spp., etc. These are generally referred to as broadleaves or hardwoods.

Tropical

Tropical timber is defined in the International Tropical Timber Agreement (1994) as follows "Non-coniferous tropical wood for industrial uses, which grows or is produced in the countries situated between the Tropic of Cancer and the Tropic of Capricorn. The term covers logs, sawnwood, veneer sheets and plywood. Plywood which includes in some measure conifers of tropical origin shall also be covered by the definition." For the purposes of this terminology, tropical sawnwood, veneer sheets and plywood shall also include products produced in non-tropical countries from imported tropical roundwood.

Transactions

Removals

The volume of all trees, living or dead, that are felled and removed from the forest, other wooded land or other felling sites. It includes natural losses that are recovered (i.e. harvested), removals during the year of wood felled during an earlier period, removals of non-stem wood such as stumps and branches (where these are harvested) and removal of trees killed or damaged by natural causes (i.e. natural losses), e.g. fire, windblown, insects and diseases. It excludes bark and other non-woody biomass and any wood that is not removed, e.g. stumps, branches and tree tops (where these are not harvested) and felling residues (harvesting waste). It is reported in cubic metres solid volume underbark (i.e. excluding bark). Where it is measured overbark (i.e. including bark), the volume has to be adjusted downwards to convert to an underbark estimate.

Production

The solid volume or weight of all production of the products specified below. It includes the production of products that may immediately be consumed in the production of another product (e.g. wood pulp, which may immediately be converted into paper as part of a continuous process). It excludes the production of veneer sheets that are used for plywood production within the same country. It is reported in cubic metres of solid volume in the case of roundwood, sawnwood and wood based panels and metric tonnes in the case of charcoal, pulp and paper products.

Imports (quantity, value)

Products imported for domestic consumption or processing shipped into a country. It includes imports for re-export. It excludes "In-transit" shipments. It is reported in cubic metres of solid volume or metric tonnes and values normally include cost, insurance and freight (i.e. CIF).

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[1] From ECE/FAO/EUROSTAT/ITTO Joint Forest Sector Questionnaire and APA-The Engineered Wood Association.

Exports (quantity, value)

Products of domestic origin or manufacture shipped out of the country. It includes re-exports. It excludes "in-transit" shipments. It is reported in cubic metres of solid volume or metric tonnes and values are normally recorded as free-on-board (i.e. FOB).

Primary products

The names of individual forest products and product aggregates are listed below in the order in which they occur in the publication *Forest Products Statistics*. Separate definitions are not provided for coniferous and non-coniferous components where the general definition given above applies. Unless indicated otherwise, each forest product category includes both coniferous and non-coniferous components.

Roundwood

All roundwood felled or otherwise harvested and removed. It comprises all wood obtained from removals, i.e. the quantities removed from forests and from trees outside the forest, including wood recovered from natural, felling and logging losses during the period, calendar year or forest year. It includes all wood removed with or without bark, including wood removed in its round form, or split, roughly squared or in other form (e.g. branches, roots, stumps and burls (where these are harvested) and wood that is roughly shaped or pointed. It is an aggregate comprising wood fuel, including wood for charcoal and industrial roundwood (wood in the rough). It is reported in cubic metres solid volume underbark (i.e. excluding bark).

Wood fuel (including wood for charcoal)

Roundwood that will be used as fuel for purposes such as cooking, heating or power production. It includes wood harvested from main stems, branches and other parts of trees (where these are harvested for fuel) and wood that will be used for charcoal production (e.g. in pit kilns and portable ovens). The volume of roundwood used in charcoal production is estimated by using a factor of 6.0 to convert from the weight (mt) of charcoal produced to the solid volume (m3) of roundwood used in production. It also includes wood chips to be used for fuel that are made directly (i.e. in the forest) from roundwood. It excludes wood charcoal. It is reported in cubic metres solid volume underbark (i.e. excluding bark).

Industrial roundwood (wood in the rough)

All roundwood except wood fuel. It is an aggregate comprising sawlogs and veneer logs; pulpwood, round and split; and other industrial roundwood. It is reported in cubic metres solid volume underbark (i.e. excluding bark). The customs classification systems used by most countries do not allow the division of Industrial Roundwood *trade* statistics into the different end-use categories that have long been recognized in *production* statistics (i.e. saw and veneer logs, pulpwood and other industrial roundwood). It excludes telephone poles.

Sawlogs and veneer logs

Roundwood that will be sawn (or chipped) lengthways for the manufacture of sawnwood or railway sleepers (ties) or used for the production of veneer (mainly by peeling or slicing). It includes roundwood (whether or not it is roughly squared) that will be used for these purposes; shingle bolts and stave bolts; match billets and other special types of roundwood (e.g. burls and roots, etc.) used for veneer production. It is reported in cubic metres solid volume underbark (i.e. excluding bark).

Pulpwood, round and split

Roundwood that will be used for the production of pulp, particleboard or fibreboard. It includes: roundwood (with or without bark) that will be used for these purposes in its round form or as splitwood or wood chips made directly (i.e. in the forest) from roundwood. It is reported in cubic metres solid volume underbark (i.e. excluding bark).

Other industrial roundwood

Industrial roundwood (wood in the rough) other than sawlogs, veneer logs and/or pulpwood. It includes roundwood that will be used for poles, piling, posts, fencing, pitprops tanning, distillation and match blocks, etc. It is reported in cubic metres solid volume underbark (i.e. excluding bark).

Wood charcoal

Wood carbonised by partial combustion or the application of heat from external sources. It includes charcoal used as a fuel or for other uses, e.g. as a reduction agent in metallurgy or as an absorption or filtration medium. It is reported in metric tonnes.

Chips and particles

Wood that has been deliberately reduced to small pieces during the manufacture of other wood products and is suitable for pulping, for particle board and fibreboard production, for use as a fuel, or for other purposes. It excludes wood chips made directly (i.e. in the forest) from roundwood (i.e. already counted as pulpwood, round and split). It is reported in cubic metres solid volume excluding bark.

Wood residues

The volume of roundwood that is left over after the production of forest products in the forest processing industry (i.e. forest processing residues) and that has not been reduced to chips or particles. It includes sawmill rejects, slabs, edgings and trimmings, veneer log cores, veneer rejects, sawdust, residues from carpentry and joinery production, etc. It excludes wood chips made either directly (i.e. in the forest) from roundwood or made from residues (i.e. already counted as pulpwood, round and split or wood chips and particles). It is reported in cubic metres solid volume excluding bark.

Sawnwood

Wood that has been produced from both domestic and imported roundwood, either by sawing lengthways or by a profile-chipping process and that, with a few exceptions, exceeds 5 mm in thickness. It includes planks, beams, joists, boards, rafters, scantlings, laths, boxboards, sleepers and "lumber", etc., in the following forms: unplaned, planed, finger-jointed, etc. It excludes sleepers, wooden flooring, mouldings (sawnwood continuously shaped along any of its edges or faces, like tongued, grooved, rebated, V-jointed, beaded, moulded, rounded or the like) and sawnwood produced by resawing previously sawn pieces. It is reported in cubic metres solid volume.

Wood-based panels

This product category is an aggregate comprising veneer sheets, plywood, particle board, and fibreboard. It is reported in cubic metres solid volume.

Veneer sheets

Thin sheets of wood of uniform thickness, rotary cut (i.e. peeled), sliced or sawn. It includes wood used for the manufacture of laminated construction material, furniture, veneer containers, etc. It excludes wood used for plywood production within the same country. It is reported in cubic metres solid volume.

Plywood

A panel consisting of an assembly of veneer sheets bonded together with the direction of the grain in alternate plies generally at right angles. The veneer sheets are usually placed symmetrically on both sides of a central ply or core that may itself be made from a veneer sheet or another material. It includes *veneer plywood* (plywood manufactured by bonding together more than two veneer sheets, where the grain of alternate veneer sheets is crossed, generally at right angles); *core plywood* or *blockboard* (plywood with a solid core (i.e. the central layer, generally thicker than the other plies) that consists of narrow boards, blocks or strips of wood placed side by side, which may or may not be glued together); *cellular board* (plywood with a core of cellular construction); and *composite plywood* (plywood with the core or certain layers made of material other than solid wood or veneers). It excludes laminated construction materials (e.g. glulam), where the grain of the veneer sheets generally runs in the same direction. It is reported in cubic metres solid

volume. Non-coniferous (tropical) plywood is defined as having at least one face sheet of non-coniferous (tropical) wood.

Particle board (including oriented strandboard (OSB))

A panel manufactured from small pieces of wood or other ligno-cellulosic materials (e.g. chips, flakes, splinters, strands, shreds, shives, etc.) bonded together by the use of an organic binder together with one or more of the following agents: heat, pressure, humidity, a catalyst, etc. The particle board category is an aggregate category. It includes particle board; oriented strandboard (OSB) and flaxboard. It excludes wood wool and other particle boards bonded together with inorganic binders. It is reported in cubic metres solid volume.

Oriented strandboard (OSB)

A structural board in which layers of narrow wafers are layered alternately at right angles in order to give the board greater elastomechanical properties. The wafers, which resemble small pieces of veneer, are coated with e.g. waterproof phenolic resin glue, interleaved together in mats and then bonded together under heat and pressure. The resulting product is a solid, uniform building panel having high strength and water resistance. It includes: waferboard and oriented strandboard (OSB). It is reported in cubic metres solid volume.

Fibreboard

A panel manufactured from fibres of wood or other ligno-cellulosic materials with the primary bond deriving from the felting of the fibres and their inherent adhesive properties (although bonding materials and/or additives may be added in the manufacturing process). It includes fibreboard panels that are flat-pressed and moulded fibreboard products. It is an aggregate comprising hardboard; medium density fibreboard (MDF); and insulating board. It is reported in cubic metres solid volume.

Hardboard

Fibreboard of a density exceeding 0.8 g/cm3 It excludes similar products made from pieces of wood, wood flour or other ligno-cellulosic material where additional binders are required to make the panel; and panels made of gypsum or other mineral material. It is reported in cubic metres solid volume.

Medium density fibreboard (MDF)

Fibreboard of a density exceeding 0.5 g/cm3 but not exceeding 0.8 g/cm3 It is reported in cubic metres solid volume.

Insulating board

Fibreboard of a density not exceeding 0.5 g/cm^3. It is reported in cubic metres solid volume.

Wood pulp

Fibrous material prepared from pulpwood, wood chips, particles or residues by mechanical and/or chemical process for further manufacture into paper, paperboard, fibreboard or other cellulose products. It is an aggregate comprising mechanical wood pulp; semi-chemical wood pulp; chemical wood pulp; and dissolving wood pulp. It is reported in metric tonnes air-dry weight (i.e. with a 10% moisture content).

Mechanical wood pulp

Wood pulp obtained by grinding or milling pulpwood or residues into fibres, or through refining chips or particles. Also called groundwood pulp and refiner pulp, it may be bleached or unbleached. It includes chemi-mechanical and thermo-mechanical pulp. It excludes exploded and defibrillated pulp. It is reported in metric tonnes air-dry weight (i.e. with 10% moisture content).

Semi-chemical wood pulp

Wood pulp obtained by subjecting pulpwood, wood chips, particles or residues to a series of mechanical and chemical treatments, none of which alone is sufficient to make the fibres separate readily. It may be bleached or unbleached. It includes semi-chemical wood pulp; chemi-groundwood pulp; and chemi-mechanical wood pulp etc.

(named in the order and importance of the treatment during the manufacturing process). It is reported in metric tonnes air-dry weight (i.e. with 10% moisture content).

Chemical wood pulp

Wood pulp obtained by subjecting pulpwood, wood chips, particles or residues to a series of chemical treatments. It includes sulphate (kraft) wood pulp; soda wood pulp and sulphite wood pulp. It may be bleached, semi-bleached or unbleached. It excludes dissolving grades of wood pulp. It is reported in metric tonnes air-dry weight (i.e. with 10% moisture content). If available, statistics for the following four component pulps are also requested: unbleached sulphite pulp; bleached sulphite pulp; unbleached sulphate pulp; and bleached sulphate pulp.

Sulphate unbleached pulp
Sulphate bleached pulp

Wood pulp obtained by mechanically reducing pulpwood, wood chips, particles or residues to small pieces that are subsequently cooked in a pressure vessel in the presence of sodium hydroxide cooking liquor (soda pulp) or a mixture of sodium hydroxide and sodium sulphite cooking liquor (sulphate pulp). It excludes dissolving grades of wood pulp. It is reported in metric tonnes air-dry weight (i.e. with a 10% moisture content). Data for two classes (bleached, including semi-bleached, and unbleached) are requested separately.

Sulphite unbleached pulp
Sulphite bleached pulp

Wood pulp obtained by mechanically reducing pulpwood, wood chips, particles or residues to small pieces that are subsequently cooked in a pressure vessel in the presence of a bisulphite cooking liquor. Bisulphites such as ammonium, calcium, magnesium and sodium are commonly used in this process. It excludes dissolving grades of wood pulp. It is reported in metric tonnes air-dry weight (i.e. with a 10% moisture content). Data for two classes (bleached, including semi-bleached, and unbleached) are requested separately.

Dissolving grades

Chemical pulp (sulphate, soda or sulphite) made from wood of special quality, with a very high alpha-cellulose content (usually 90 percent and over). This type of pulp is always bleached and is readily adaptable for uses other than papermaking. It is used principally as a source of cellulose in the manufacture of products such as synthetic fibres, cellulose plastic materials, lacquers and explosives. It is reported in metric tonnes air-dry weight (i.e. with 10% moisture content).

Other pulps

Pulp manufactured from waste paper or from fibrous vegetable materials other than wood and used for the manufacture of paper, paperboard and fibreboard. It is an aggregate comprising pulp from fibres other than wood and recovered fibre pulp. It is reported in metric tonnes air-dry weight (i.e. with 10% moisture content).

Pulp from fibres other than wood

Pulp manufactured from fibrous vegetable materials other than wood and used for the manufacture of paper, paperboard and fibreboard. It excludes pulp made from recovered paper. It includes pulps made from: straw; bamboo; bagasse; esparto; other reeds or grasses; cotton fibres; flax; hemp; rags; and other textile wastes. It is reported in metric tonnes air-dry weight (i.e. with 10% moisture content).

Recovered fibre pulp

Pulp manufactured from recovered paper or paperboard and used for the manufacture of paper, paperboard and fibreboard. It excludes pulp made from straw; bamboo; bagasse; esparto; other reeds or grasses; cotton fibres; flax; hemp; rags; and other textile wastes. It is reported in metric tonnes air-dry weight (i.e. with 10% moisture content).

Recovered paper

Waste and scraps of paper or paperboard that have been collected for re-use as a raw material for the manufacture of paper and paperboard. It includes paper and paperboard that has been used for its original purpose and residues from paper and paperboard production. It is reported in metric tonnes.

Paper and paperboard

The paper and paperboard category is an aggregate category. In the production and trade statistics, it represents the sum of: graphic papers; sanitary and household papers; packaging materials and other paper and paperboard. Products in this category are generally manufactured in strips or rolls of a width exceeding 15 cm (36 cm for HS 48.13 and 48.19) or in rectangular sheets with one side exceeding 36 cm and the other exceeding 15 cm in the unfolded state. It excludes manufactured paper products such as boxes, cartons, books and magazines, etc. It is reported in metric tonnes.

Graphic papers

The graphic papers category is an aggregate category. In the production and trade statistics, it represents the sum of: newsprint; uncoated mechanical; uncoated woodfree and coated papers. Products in this category are generally manufactured in strips or rolls of a width exceeding 15 cm (36 cm for HS 48.13 and 48.19) or in rectangular sheets with one side exceeding 36 cm and the other exceeding 15 cm in the unfolded state. It excludes manufactured paper products such as books and magazines, etc. It is reported in metric tonnes.

Newsprint

Paper mainly used for printing newspapers. It is made largely from mechanical pulp and/or waste paper, with or without a small amount of filler. Weights usually range from 40 to 52g/m2 but can be as high as 65g/m2. Newsprint is machine finished or slightly calendered, white or slightly coloured and is used in reels for letterpress, offset or flexo printing. It is reported in metric tonnes.

Uncoated mechanical

Paper suitable for printing or other graphic purposes where less than 90% of the fibre furnish consists of chemical pulp fibres. This grade is also known as groundwood or wood-containing paper and magazine paper, such as heavily filled supercalendered paper for consumer magazines printed by the rotogravure and offset methods. Excluded: Wallpaper base. It is reported in metric tonnes.

Uncoated woodfree

Paper suitable for printing or other graphic purposes, where at least 90% of the fibre furnish consists of chemical pulp fibres. Uncoated woodfree paper can be made from a variety or furnishes, with variable levels of mineral filler and a range of finishing processes such as sizing, calendering, machine glazing and watermarking. This grade includes most office papers, such as business forms, copier, computer, stationery and book papers. Pigmented and size press "coated" papers (coating less than 5g per side) are covered by this heading. It excludes wallpaper base. It is reported in metric tonnes.

Coated papers

All paper suitable for printing or other graphic purposes and coated on one or both sides with carbon or minerals such as china clay (kaolin), calcium carbonate, etc. Coating may be by a variety of methods, both on-machine and off-machine, and may be supplemented by supercalendering. Included: Raw carbon and self-copy paper in rolls or sheets. Excluded: Other copying and transfer papers. It is reported in metric tonnes.

Sanitary and household papers

This covers the stock of a wide range of tissue and other hygienic papers for use in households or commercial and industrial premises. Examples are toilet paper and facial tissues, kitchen towels, hand towels and industrial wipes. Some tissue is also used in the manufacture of babies napkins, sanitary towels, etc. The parent reel stock is made from virgin pulp or recovered fibre or mixtures of these. Final products cut to size or in rolls not exceeding 36cm are excluded here. It is reported in metric tonnes.

Packaging materials

The packaging materials category is an aggregate category. In the production and trade statistics, it represents the sum of case materials; folding boxboard; wrapping papers; and other papers mainly for packaging. Paper or paperboard mainly used for wrapping and packaging purposes. Excluded: Unbleached kraft paper and paperboard that are not Sack kraft paper or Kraftliner and weighing more than 150 g/m² but less than 225 g/m²; felt paper and paperboard; tracing papers; not further processed uncoated paper weighing 225 g/m² or more. It is reported in metric tonnes.

Case materials

Papers and boards mainly used in the manufacture of corrugated board. They are made from any combination of virgin and recovered fibres and can be bleached, unbleached or mottled. Included are kraftliner, testliner, semi-chemical fluting, and waste-based fluting (Wellenstoff). It is reported in metric tonnes.

Folding boxboard

Often referred to as cartonboard, it may be single or multiply, coated or uncoated. It is made from virgin and/or recovered fibres, and has good folding properties, stiffness and scoring ability. It is mainly used in cartons for consumer products such as frozen food and for liquid containers. It includes paper and paperboard covered or coated with plastics (excluding adhesives); coated multi-ply not uniformly bleached throughout the mass. It is reported in metric tonnes.

Wrapping papers

Wrappings (up to 150 grams/m^2): Papers whose main use is wrapping or packaging made from any combination of virgin or recovered fibres, bleached or unbleached. They may be subject to various finishing and/or marking processes. Included are sack kraft, other wrapping krafts, sulphite and greaseproof papers as well as coated paper and paperboard not uniformly bleached throughout the mass, except Multi-ply. It excludes tracing papers. It is reported in metric tonnes.

Other papers mainly for packaging

This category embraces all papers and boards mainly for packaging purposes other than those listed above. Most are produced from recovered fibres, e.g. greyboards, and go for conversion, which in some cases may be for end-uses other than packaging. Included: Composite, not coated, paper and paper board of flat layers stuck together. It is reported in metric tonnes.

Other paper and paperboard

Other papers and boards for industrial and special purposes. This category includes cigarette papers and stock of filter papers, as well as gypsum liners and special papers for waxing, insulating, roofing, asphalting, and other specific applications or treatments. Excluded: All composite, not coated, paper and paper board of flat layers stuck together; coated paper and paperboard not uniformly bleached throughout the mass; paper and paperboard covered or coated with plastics (excluding adhesives). Included: wallpaper base; Unbleached kraft paper and paperboard that are no Sack kraft paper or Kraftliner and weighing more than 150 grams/m^2 but less than 225 grams/m^2; felt paper and paperboard; Tracing papers; not further processed uncoated paper weighing 225 grams/m^2 or more. Raw copying and transfer papers, in rolls or sheets except carbon or self-copy paper. It is reported in metric tonnes.

Secondary processed wood products

Further processed sawnwood

Wood sawn or chipped lengthwise (including strips and friezes for parquet flooring, not assembled) and continuously shaped (tongued, grooved, rebated, V-jointed, beaded, moulded, rounded or the like) along any of its edges or faces, whether or not planed, sanded or finger jointed. Excludes: sawn or chipped wood with further treatment of edges and/or faces other than planing, or sanding.

Wooden packaging material

Packing cases, boxes, crates, drums and similar packings, of wood; cable-drums of wood; pallets, box pallets and other load boards, of wood; pallet collars of wood. Casks, barrels, vats, tubs and other coopers' products and parts thereof, of wood, including staves.

Builder's joinery and carpentry of wood

Including windows and doors and coverings thereof as well as cellular wood panels, assembled parquet panels, shingles and shakes.

Wooden furniture

Seats with wooden frames as wooden camping and garden seats etc. and parts thereof. Except: seats convertible into beds, swivel seats, medical seats. Wooden furniture other than seats as of a kind used in offices, in the kitchen, bedrooms and elsewhere, as well as parts of all these.

Prefabricated buildings predominantly made of wood

E.g.: Log cabins, houses predominantly prefabricated from wood-based panels.

Secondary paper products

This group excludes paper in reels and sheets not cut to size included in JQ2. It is an aggregation of all paper products ready for use.

Composite paper and paperboard

Composite paper and paperboard (made by sticking flat layers of paper or paperboard together with an adhesive), not surface-coated or impregnated, whether or not internally reinforced, in rolls or sheets

Special coated paper and pulp products

Paper, paperboard, cellulose wadding and webs of cellulose fibres, coated, impregnated, covered, surface-coloured, surface-decorated or printed, in rolls or sheets. Excluded: Composite paper and paperboard (made by sticking flat layers of paper or paperboard together with an adhesive), not surface-coated or impregnated, but possibly laminated internally with bitumen, tar or asphalt, in rolls or sheets.

Carbon paper and copying paper, ready for use

Carbon paper, self-copy paper and other copying or transfer, duplicator stencils and offset plates, of paper, whether or not put up in boxes. Excluded: Raw carbon, self-copy and other copying or transfer papers in paper in rolls or sheets.

Household and sanitary paper

Products ready for use: toilet paper and similar paper, cellulose wadding or webs of cellulose fibres, of a kind used for household or sanitary purposes, in rolls of a width not exceeding 36 cm, or cut to size or shape; included: e. g. handkerchiefs, cleansing tissues, towels, tablecloths, serviettes, napkins for babies, tampons, bed sheets and similar household, sanitary or hospital articles, articles of apparel and clothing accessories, of paper pulp, paper, cellulose wadding or webs of cellulose fibres. excluded: sanitary paper produced stock.

Packaging cartons, boxes etc.

Cartons, boxes, cases, bags and other packing containers, of paper, paperboard, cellulose wadding or webs of cellulose fibres; box files, letter trays, and similar articles, of paper or paperboard of a kind used in offices, shops or the like.

Other articles of paper and paperboard, ready for use

Products ready for use: e.g. wallpaper and similar wall coverings; window transparencies of paper; floor coverings on a base of paper or of paperboard, whether or not cut to size; all office material like for correspondence, document storage as well as albums, labels of all kinds, bobbins, spools, cops and similar supports of paper pulp, paper or paperboard (whether or not perforated or hardened); all other paper, paperboard, cellulose wadding and webs of cellulose fibres, cut to size or shape; other articles of paper pulp, paper, paperboard, cellulose wadding or webs of cellulose fibres.

Printing and writing paper, ready for use

For example: strips or rolls for office machines, continuous forms

Articles, moulded or pressed from pulp

For example: packaging for eggs

Filter paper and paperboard, ready for use

Printed articles

Printed books

Printed books, brochures, leaflets and similar printed matter, whether or not in single sheets

Newspapers

Newspapers, journals and periodicals, whether or not illustrated or containing advertising material

Other printed articles

Children's picture, drawing or colouring books; music, printed or in manuscript, whether or not bound or illustrated; maps and hydrographic or similar charts of all kinds, including atlases, wall maps, topographical plans and globes, printed; plans and drawings for architectural, engineering, industrial, commercial, topographical or similar purposes, being originals drawn by hand; hand-written texts; photographic reproductions on sensitised paper and carbon copies of the foregoing; unused postage, revenue or similar stamps of current or new issue in the country to which they are destined; stamp-impressed paper; banknotes; cheque forms; stock, share or bond certificates and similar documents of title; transfers (decalcomania); printed or illustrated postcards; printed cards bearing personal greetings, messages or announcements, whether or not illustrated, with or without envelopes or trimmings; calendars of any kind, printed, including calendar blocks; other printed matter, including printed pictures and photographs.

Engineered wood products

These definitions come from the APA-The Engineered Wood Association. APA classifies glued engineered wood products into three general groups: 1. glued laminated timber (glulam), 2. structural composite lumber (SCL) consisting primarily of laminated veneer lumber (LVL), but also parallel strand lumber and oriented strand lumber, and 3. wood I-beams.

Glued laminated timber (glulam)

Glulam is an engineered stress-rated product created by adhesively bonding together individual pieces of lumber having a thickness of 50 mm (2 inches) or less. It's one of the most versatile of the engineered wood products. It can be easily shaped into forms ranging from straight beams to complex curved members and is used for a wide variety of structural applications in both residential and nonresidential construction. Glulam is used typically for headers, girders, purlins, beams, arches, and in exposed applications such as bridges, marinas and transmission structures.

Structural composite lumber

Laminated Veneer Lumber (LVL)

LVL is the most widely used of the structural composite lumber products. It is produced by adhesively bonding thin wood veneers together in a large billet so that the grain of all veneers is parallel to the long direction. The LVL billet is then sawn to desired dimensions depending on the construction application. Some of the many uses are in header and beam applications, hip and valley rafters, as scaffold planking and as flange material for wood I-beams.

Parallel Strand Lumber (PSL)

PSL consists of long veneer strands laid in parallel formation and bonded together with an adhesive to form beams. Like LVL and glulam, this product is used for beam and header applications where high bending strength is needed.

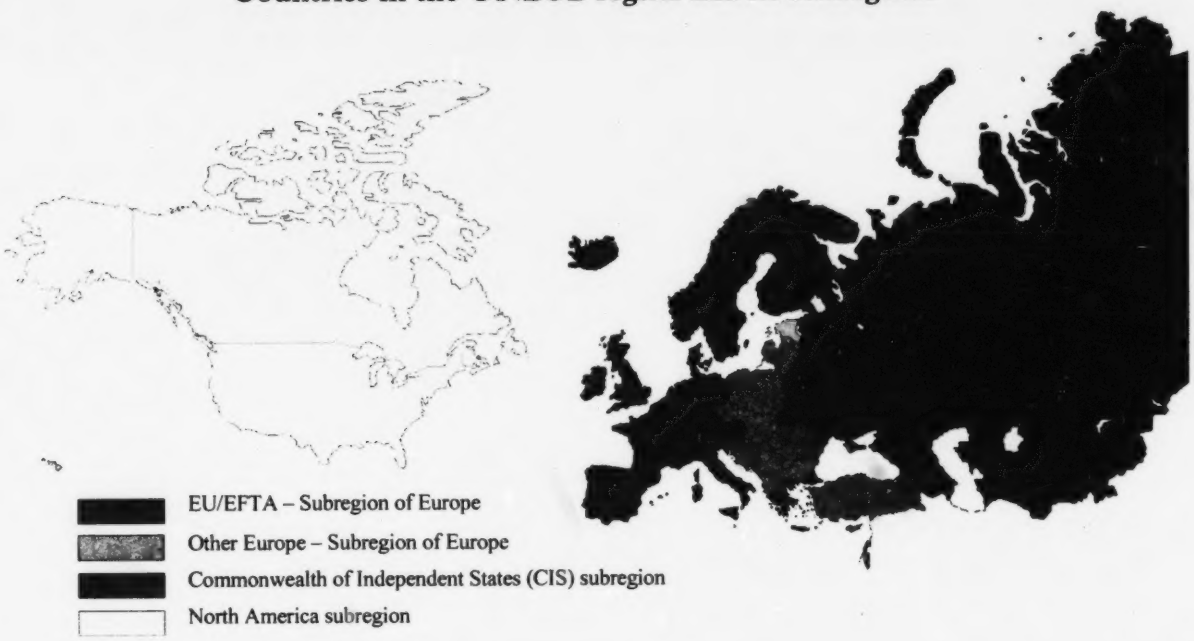
Oriented Strand Lumber (OSL)

Similar to PSL, oriented strand lumber is made from flaked wood strands that have a high length-to-thickness ratio. Combined with an adhesive, the strands are oriented and formed into a large mat or billet and pressed. OSL is used in a variety of applications from studs to millwork components.

Wood I-beams

Wood I-beams are structural, load-carrying products designed mostly for floor joist applications. The beams offer long length and low material weight. Their "I" configuration provides high strength and stiffness. The flange material for I-beams is typically dimension lumber or LVL; the web material is typically oriented strand board (OSB) or plywood. Wood I-beams, used extensively in residential construction, continue to be the fastest growing of the glued engineered wood products.

Countries in the UNECE region and its subregions


EU/EFTA – Subregion of Europe
Other Europe – Subregion of Europe
Commonwealth of Independent States (CIS) subregion
North America subregion

"EU/EFTA" – subregion of Europe

Austria
Belgium
Denmark
Finland
France
Germany
Greece
Iceland
Ireland
Italy
Liechtenstein
Luxembourg
Netherlands
Norway
Portugal
Spain
Sweden
Switzerland
United Kingdom

"Other Europe" – subregion of Europe

Albania
Andorra
Bosnia-Herzegovina
Bulgaria
Croatia
Cyprus
Czech Republic
Estonia
Hungary
Israel
Latvia
Lithuania
Malta
Monaco
Poland
Romania
San Marino
Slovak Republic
Slovenia
The former Yugoslav Republic of Macedonia
Turkey
Yugoslavia

Commonwealth of Independent States (CIS) subregion

Armenia
Azerbaijan
Belarus
Georgia
Kazakhstan
Kyrgyzstan
Republic of Moldova
Russian Federation
Tajikistan
Turkmenistan
Ukraine
Uzbekistan

North America subregion

Canada
United States of America

Sources of information used in the *Forest Products Annual Market Review*

American Hardwood Export Council, United States, (http://www.ahec.org)

American Hardwood Export Council, United Kingdom, (http://www.ahec.org)

American Forest & Paper Association, United States, (http://www.afandpa.org)

APA – The Engineered Wood Association, United States, (http://www.apawood.org)

Arborescences, France, (http://www.onf.fr)

Asian Timber, Singapore, (asiantimber@firstasia.com.sg)

Bureau of Labor Statistics, United States, (http://www.stats.bls.gov))

Canadian Sustainable Forestry Certification Coalition, (http://www.sfms.com))

Centre d'Etudes de l'Economie du Bois, France

Chilean Forestry News, (http://www.conaf.cl)

Commerce International du Bois, France, (http://www.ifrance.com/cib-ltb)

Confederation of European Paper Industries, (http://www.cepi.org)

Council of Forest Industries, Canada, (http://www.cofi.org)

CSA International, Canadian Standards Association, (http://www.csa/ca)

Eastern Quotes & Comments, United States, (http://www.rcrc.com/irland)

European Federation of the Parquet Industry, Belgium, (http://www.euparal.com)

ECE/FAO TIMBER database, (http://www.unece.org/trade/timber)

Engineered Lumber Trends, United States, (http://www.rcrc.com/irland/ELT)

EPF – European Panel Federation, (http://www.europanels.org)

EUROSTAT – EU Statistical Office, (http://europa.eu.int/comm/eurostat)

Far East Economic Review, (http://www.feer.com)

Fédération Nationale du Bois, France, (http://www.fnbois.com)

Financial Times, (http://www.financialtimes.com

Food and Agriculture Organizations of the United Nations (http://www.fao.org)

Forest Products Association of Canada, (http://www.fpac.ca)

Forest Service, United States, Dept of Agriculture, United States, (http://www.fs.fed.us)

Forest Products Journal, United States, (http://www.forestprod.org)

FSC – Forest Stewardship Council, (http://www.fscoax.org)

Furniture Design and Manufacturing Asia

Hardwood Market Report, United States, (http://www.hmr.com)

Hardwoodmarkets.com, United Kingdom, (http://hardwoodmarkets.com)

Hardwood Review Export, United States, (http://www.hardwoodreview.com)

Holz Journal, Germany, (http://www.zmp.de/holz/holzjournal/indexhj.htm)

Holz Kurier, Austria, (http://www.holtzkurier.at)

Holz-Forschung & Holz-Verwetung, Austria

Holz-Zentralblatt, Germany, (http://www.holz-zentralblatt.com)

Import Export Purchasing News, United States, (http://www.woodpurchasing news.com)

International Wood Fiber Report, United States, (http://www.paperloup.com)

ISO – International Organization for Standardization, (http://www.iso.ch)

ITTO – The International Tropical Timber Organisation, (http://www.itto.or.jp)

ITTO Market Information Service, (http://www.itto.or.jp/market/Market_Information.html)

Jaakko Pöyry Consulting, (http://consulting.poyry.com)

Japan Lumber Journal, (http://www.scan-net.ne.jp) (http://www.jlj.gr.jp)

Japan Lumber Reports, (e-mail: info@n-mokuzai.com)

Japan Forest Products Journal

Japan Times, (http://www.japantimes.co.jp)

JAWIC – Japan Wood-Products Information and Research Center, (http://www.jawic.or.jp/)

La Forêt, Switzerland, (http://www.wvs.ch)

Le Bois National, France, (http://www.boiscope.com)

L'echo des bois, Belgium, (echobois@skypro.be)

Malaysian Timber Bulletin, (http://www.mtc.com.mg/publication/bulletin/bulletin.html)

Maskayu, Malaysia, (http://www.mtib.gov.my)

MEC *Naujienos* (Centre of Forest Economics Information Bulletin), Lithuania, (http://www.it/eng/neujienos/next.html)

METLA – Finnish Forest Research Institute, (http://www.metla.fi)

Ministry of Forest, British Columbia, Canada, (http://www.gov.bc.ca/for)

New Zealand Forest Industries Magazine, (http://www.nzforest.co.nz)

New Zealand Ministry of Agriculture and Forestry *Statistical Release*, (http://www.maf.govt.nz/foretry)

Newsprint Data, Canada

Ohio Division of Forestry, United States, (http://www.hcs.ohio-state.edu/ODNR/Forestry.htm)

PaperTree Letter, United States, (http://www.paperloop.com/newsletteronline)

PEFC – Pan European Forest Certification, (http://www.pefc.org)

Perkasa, Malaysia, (e-mail: sharinwa@pusaka.gov.my)

PIMA - Papermaker Magazine, United States, (http://www.pima-online.org/magazine/papermaker.html)

PPB-Express

Pulp and Paper Products Council of Canada, (http://www.pppc.org)

Pulp and Paper Week

Random Lengths Export, United States, (http://www.randomlengths.com)

Random Lengths International

Random Lengths Yardstick, United States, (http://www.randomlengths.com)

Resource Information Systems, Inc. (2001). North American Lumber Forecast, April 2001. Boston, Massachusetts.

Softwood Export Council, United States, (http://www.softwood.org)

Statistische Bundesamt Preise, Reiche 1; Reiche 2, Germany (http://www.statistik-bund.de)

The Forest Products Conservation & Recycling Review by USDA Forest Service, United States, (http://pc9.fpl.fs.fed.us/documents/nltrlist.htm)

The Swedish Wood Association, (http://www.svenskttra.org)

The Economist, (http://www.economist.com)

Timber & Wood Products (TTJ), United Kingdom, (http://www.worldwidewood.com)

United States, Census Bureau – United States, Department of Commerce, (http://www.census.gov)

USDA Foreign Agricultural Service, United States, (http://www.fas.usda.gov/ffpd/fpd.html)

USDA Forest Service, United States, (http://www.fs.fed.us)

Weekly Hardwood Review, United States, (http://www.hardwoodreview.com)

World Bank Quarterly Review of Commodity Markets, (http://www.worldbank.org)

Wood Based Panels, United Kingdom, (http://www.worldwidewood.com)

Wood Markets Monthly, United States, (http://www.woodmarkets.com)

Wood Products Statistical Roundup by AF&PA, United States, (http://www.afandpa.org)

World Wood Review, Canada

WWF – Forests for Life, (http://www.panda.org/forests4life)

ZMP – Zentrale Markt- und Preisberichtstelle für Erzeugnisse der Land-, Forst- und Ernährungswirtschaft GmbH, Germany, (http://www.zmp.de)

Special chapters in former *Forest Products Annual Market Reviews*

Note to readers: We have found that some chapters of the *Review* have a longer life than the *Annual Market Review*. The following is a listing of all the special chapters, including their most important sections, in order to give an idea of their contents. Back issues are available on the Timber Committee website or through the secretariat.

Timber Bulletin – Volume XLVII (1994)

Chapter 3 ***"Recycling Wood Fibre and its Effects on the Forest and Forest Industries Sector"***, 7 pages
- Situation analysis and legislation
- Quantifying the effects
- Consequences and solutions

Timber Bulletin – Volume LI (1998)

Chapter 3 ***"Certified Forest Products Marketplace"***, 11 pages, (has since become annual chapter)
- Forest certification schemes
- Why certification?
- Status of supply and demand
- Constraints to market development

Chapter 4 ***"Effects of the Asian Crisis on ECE Region Forest Products Markets"***, 7 pages
- Global and specific impacts on the ECE region
- Impacts on the radiata pine trade and other forest products
- Japan's forest products production and trade
- Indonesia's forest products production and trade in 1997 and 1998

Timber Bulletin – Volume LII (1999)

Chapter 3 ***"Estonia's Forest Products Market"***, 7 pages
- General economic development
- Forest resources
- Institutional framework
- Forest industry
- Trade of wood and wood products

Chapter 4 ***"New Zealand's Forest Products Market"***, 7 pages
- Background to New Zealand's plantation forestry sector
- Market conditions
- Forestry production and trade 1998/1999

Chapter 5 ***"Trade Restrictions and the Future"***, 10 pages
- The question of market access
- Trends in tariffs and non-tariff measures
- Trade impediments
- Implications of further trade liberalization

Chapter 6 ***"Forest Products in the Electronic Market Place"***, 6 pages
- WWW-sites for forest products trade
- North American and European electronic commerce
- The role of the ECE Trade Division in electronic commerce

Chapter 13 ***"Tropical Timber Developments"***, 16 pages, (has since become annual chapter)
Production, exports, imports
Tropical timber consumption and price trends
Strengthening Asian currencies

Timber Bulletin – Volume LIII (2000)

Chapter 3 ***"Effects of the December 1999 storms on European timber markets"***, 15 pages
Introduction
Damage magnitude: the equivalent of 2 years' harvest in 3 days!
Market effects: potential enormous imbalances mitigated through sector solidarity
Comparisons with 1990 market effects: similar problems and solutions
Assistance by governments: quick and multi-dimensional responsiveness
Positive outcomes?
Conclusion

Chapter 4 ***"Poland's forest products markets"***, 12 pages
Secretariat introduction
General economic developments
Forest resources
Institutional framework for forest and forest industries
Effects of the transition process
Integration into the EU
Forest industry – production and consumption
Trade of wood and wood products
Certified forest products
Prospects for wood industry

Chapter 5 ***"China's forest products markets"***, 19 pages
Secretariat introduction
General socio-economic development
Forest resources
Institutional framework
Analysis and development of production of China's major forest products, 1981 to 1999
Development of China's forest product trade from 1981 to 1999
China's forests product trade in 1999
Consumption of major forest products, with international comparisons
Projections of demand and supply of China's forest products to 2010

Chapter 6 ***"Secondary processed wood products markets"***, 10 pages
Secretariat introduction
Introduction
Secondary processed wood products
Main flows and trade patterns
Market profiles
Conclusion

Chapter 11 ***"Engineered wood products – production, trade, consumption and outlook"***, 16 pages
Secretariat note
Introduction
Current market situation
Production, consumption and trade statistics
Outlook for EWPs
Conclusions

Some facts about the Timber Committee

The Timber Committee is a principal subsidiary body of the UNECE (United Nations Economic Commission for Europe) based in Geneva. It constitutes a forum for cooperation and consultation between member countries on forestry, forest industry and forest product matters. All countries of Europe; the former USSR; United States, of America, Canada and Israel are members of the UNECE and participate in its work.

The UNECE Timber Committee shall, within the context of sustainable development, provide member countries with the information and services needed for policy- and decision-making regarding their forest and forest industry sector ("the sector"), including the trade and use of forest products and, when appropriate, formulate recommendations addressed to member Governments and interested organizations. To this end, it shall:

1. With the active participation of member countries, undertake short-, medium- and long-term analyses of developments in, and having an impact on, the sector, including those offering possibilities for the facilitation of international trade and for enhancing the protection of the environment;
2. In support of these analyses, collect, store and disseminate statistics relating to the sector, and carry out activities to improve their quality and comparability;
3. Provide the framework for cooperation e.g. by organizing seminars, workshops and ad hoc meetings and setting up time-limited ad hoc groups, for the exchange of economic, environmental and technical information between governments and other institutions of member countries that is needed for the development and implementation of policies leading to the sustainable development of the sector and to the protection of the environment in their respective countries;
4. Carry out tasks identified by the UNECE or the Timber Committee as being of priority, including the facilitation of subregional cooperation and activities in support of the economies in transition of central and eastern Europe and of the countries of the region that are developing from an economic point of view;
5. It should also keep under review its structure and priorities and cooperate with other international and intergovernmental organizations active in the sector, and in particular with the FAO (Food and Agriculture Organization of the United Nations) and its European Forestry Commission and with the ILO (International Labour Organisation), in order to ensure complementarity and to avoid duplication, thereby optimizing the use of resources.

More information about the Committee's work may be obtained by writing to:

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Fax: + 41 22 917 0041
E-mail: info.timber@unece.org
Website address: http://www.unece.org/trade/timber

UNECE/FAO Publications

Timber Bulletin Volume LIV (2001) ECE/TIM/BULL/54/...

1. Forest Products Prices, 1998-2000
2. Forest Products Statistics, 1996-2000 (database since 1964 on web site)
3. Forest Products Annual Market Review, 2000-2001
4. Forest Fire Statistics, 1998-2000
5. Forest Products Trade Flow Data, 1999-2000
6. Forest Products Markets in 2001 and Prospects for 2002

Geneva Timber and Forest Study Papers

Forest policies and institutions in Europe, 1998-2000	ECE/TIM/SP/19
Forest and forest products country profile: Russian Federation	ECE/TIM/SP/18
Forest resources of Europe, CIS, North America, Australia, Japan and New Zealand	ECE/TIM/SP/17
State of European forests and forestry, 1999	ECE/TIM/SP/16
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